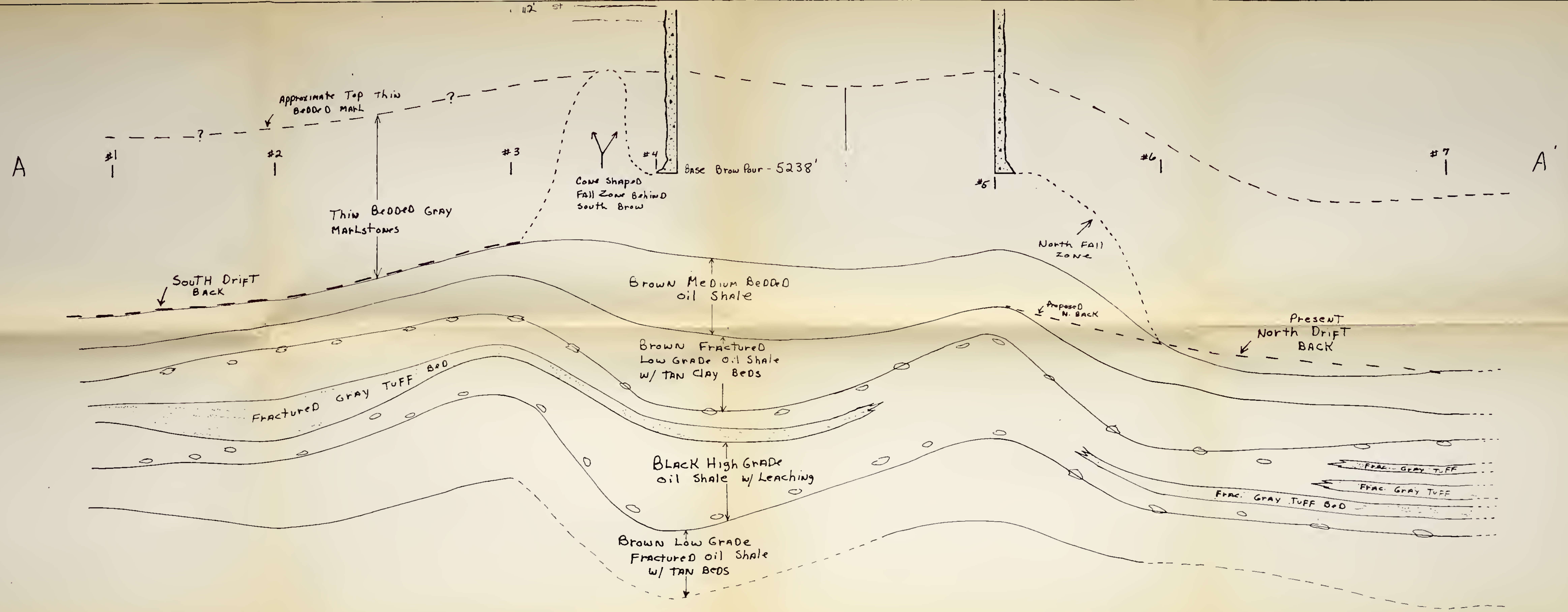
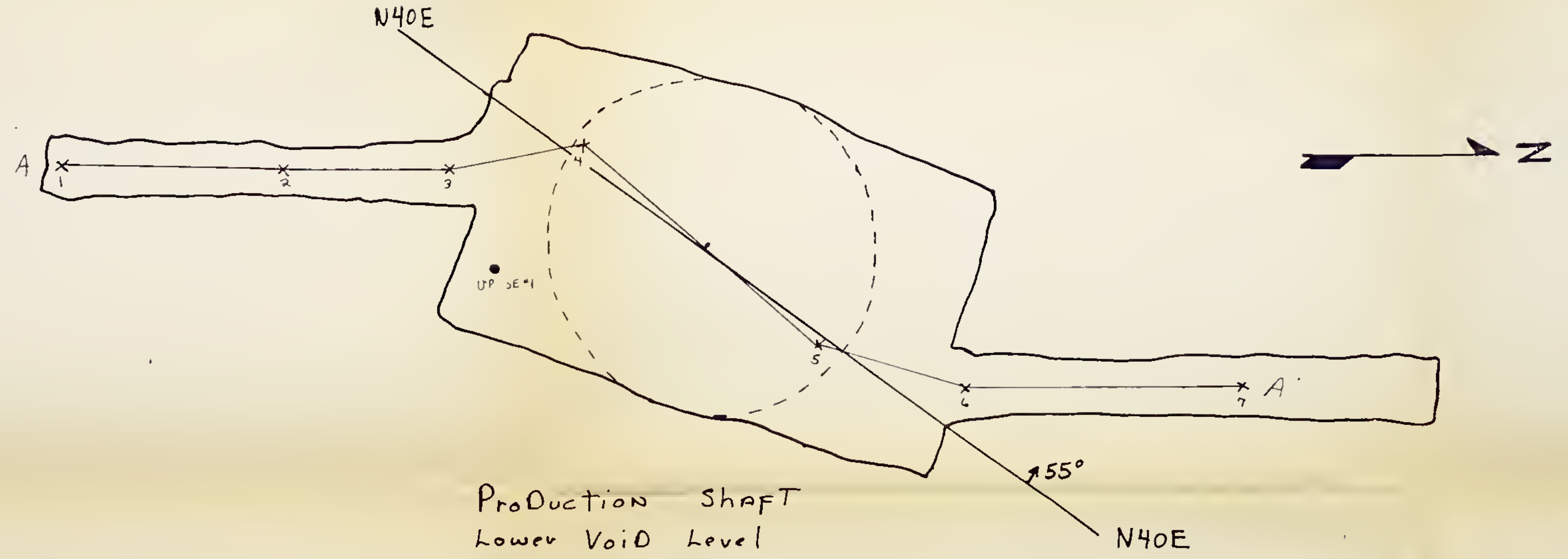
8806 4730

FEDERAL
CLASP
47090—9 x 12


112' st
A
#1
#2
#3
#4
#5
#6
#7
A'
Approximate Top Thin Bedded Marl
?
?
Cone Shaped Fall Zone Behind South Brow
Base Brow Pour - 5238'
Thin Bedded Gray Marlstones
South Drift Back
Brown Medium Bedded oil Shale
North Fall Zone
Proposed N. Back
Present North Drift Back
Brown Fractured Low Grade Oil Shale w/ Tan Clay Beds
Fractured Gray Tuff Bed
Black High Grade oil Shale w/ Leaching
Frac. Gray Tuff
Frac. Gray Tuff
Frac. Gray Tuff Bed
Brown Low Grade Fractured oil Shale w/ Tan Beds

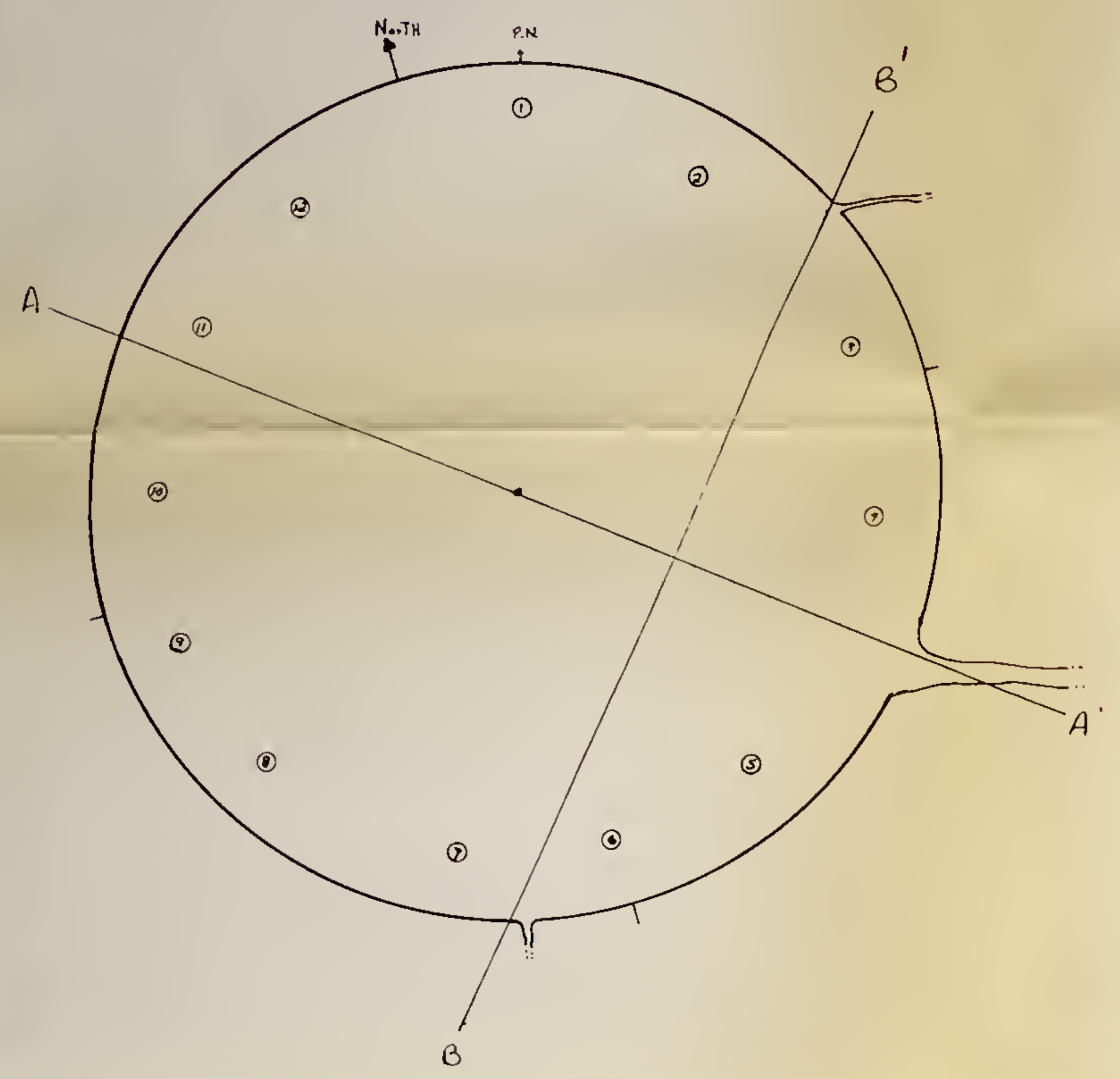
Scale
1" = 5' Horizontal
1" = 2' Verticle

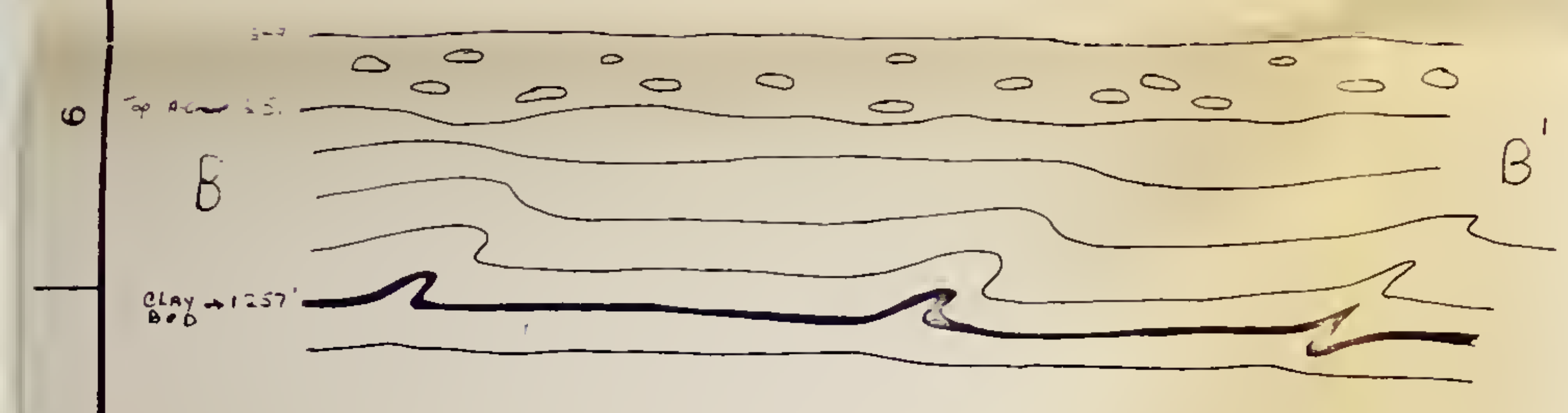


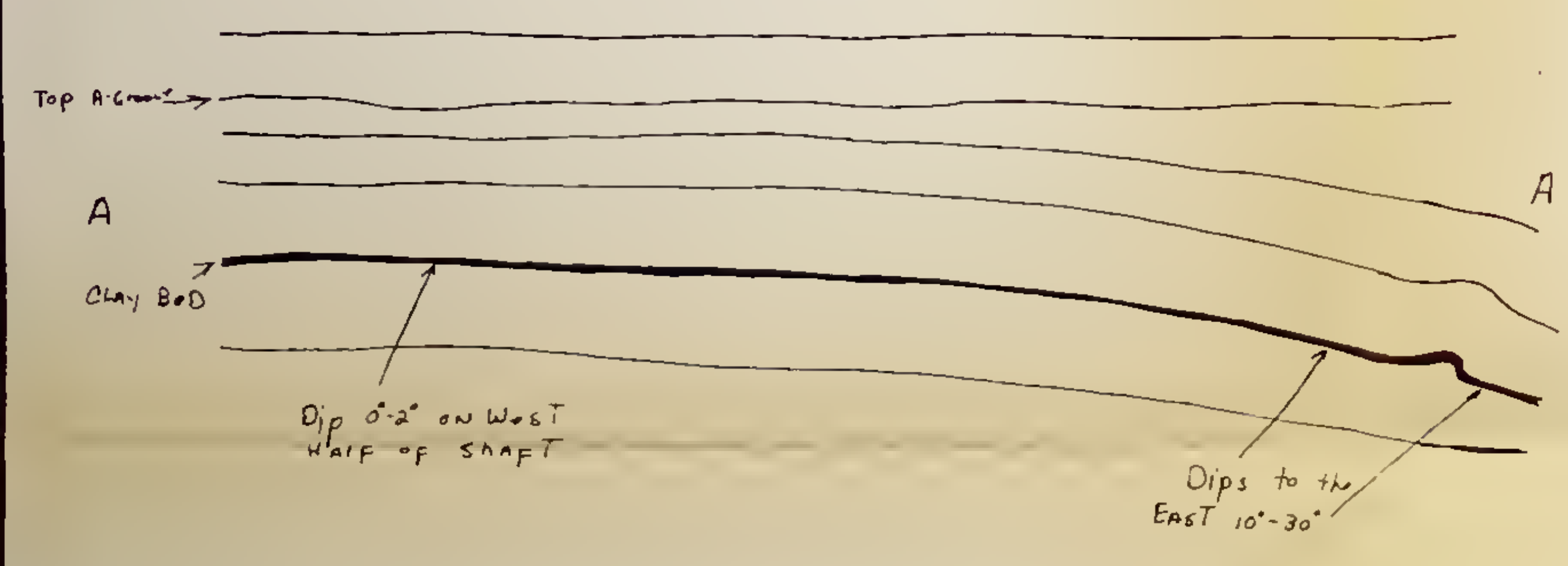
Production Shaft
Lower Void Level
Loadout Excavation
X-Section A-A'

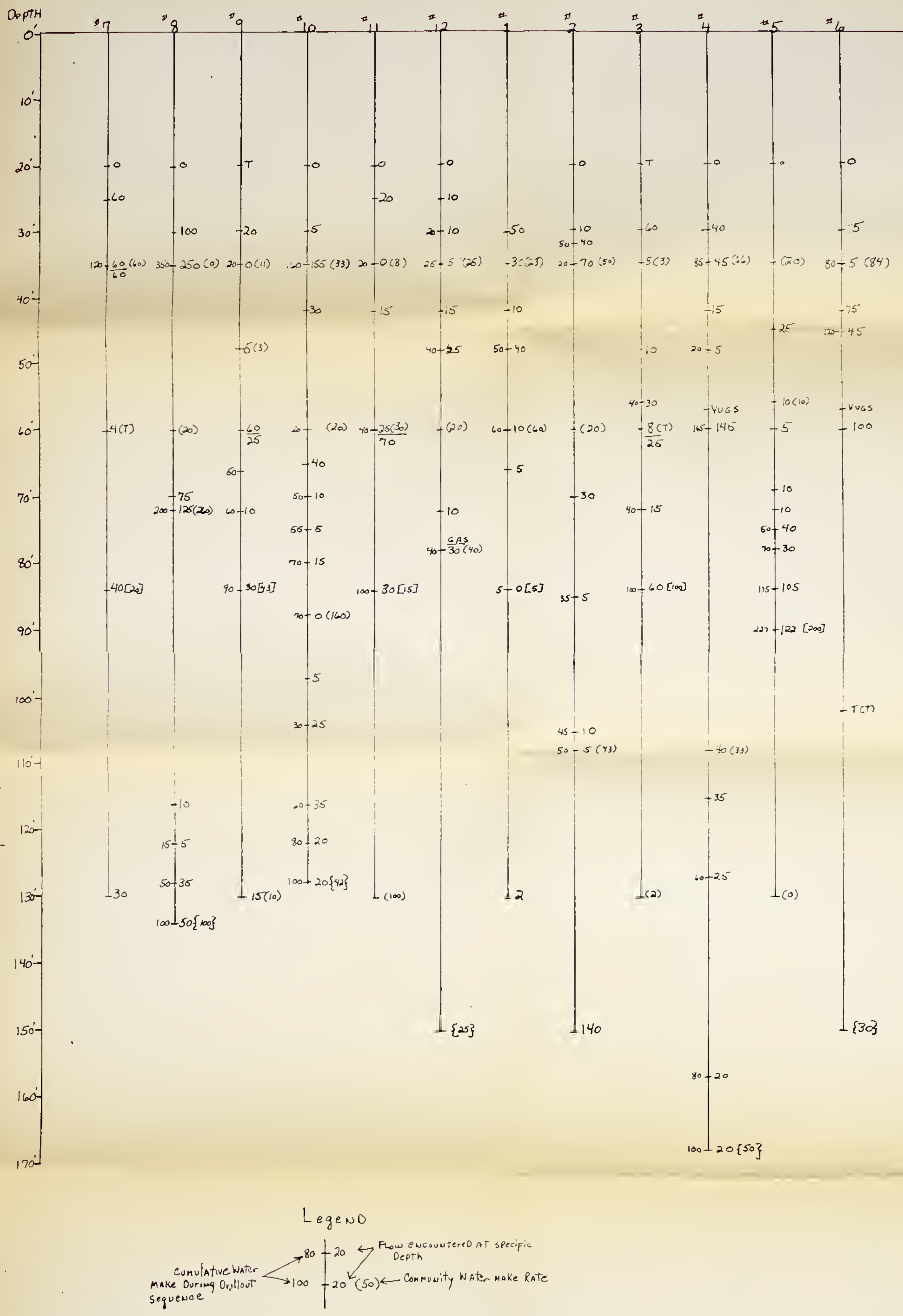
Figure 2

#10 Grout Cover Pattern







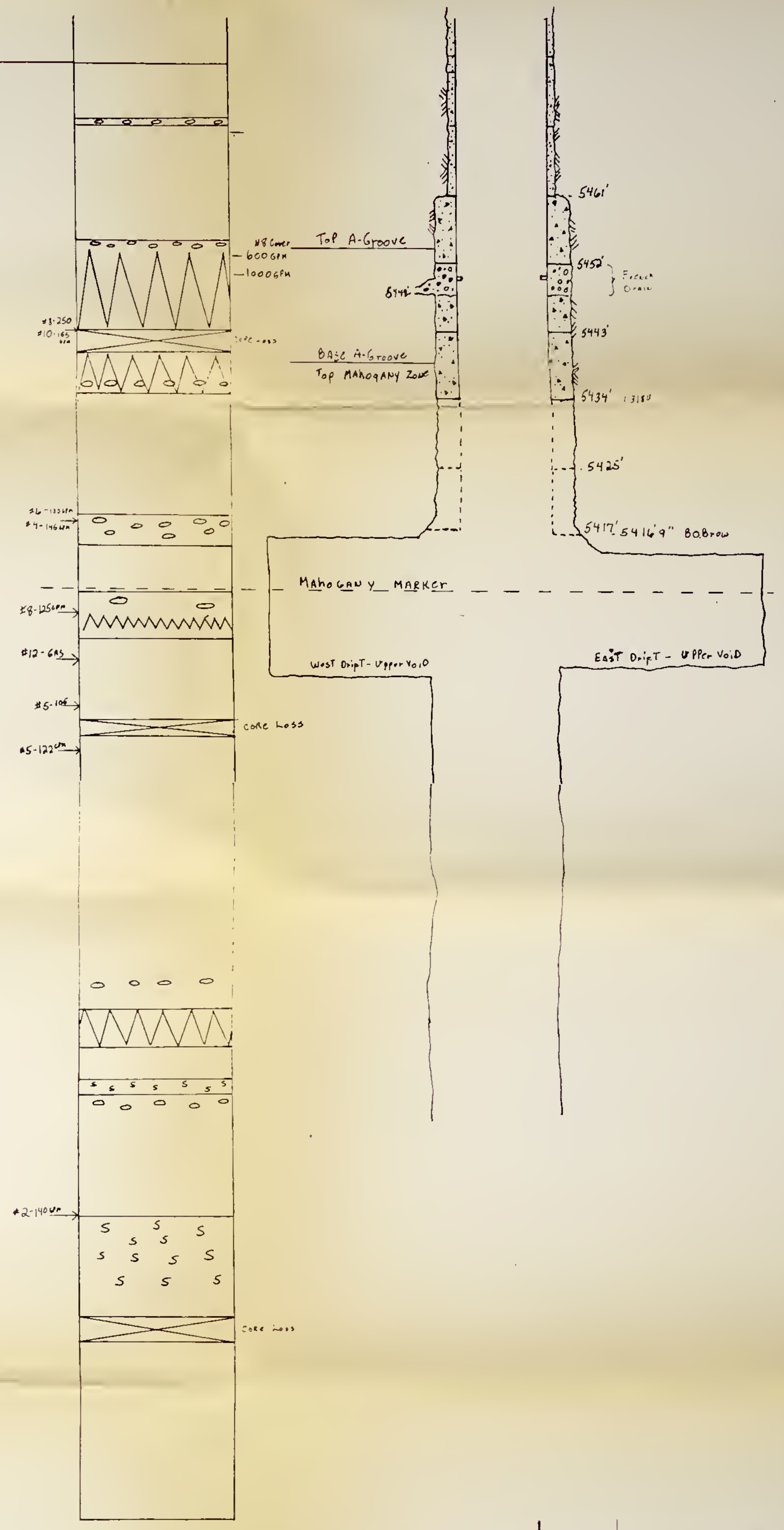


Legend

80 ┼ 20 ← Flow encountered at specific Depth

100 ┼ 20 (50) ← Community Water make Rate

Cumulative Water make During Drillout Sequence



Scale 1" = 10'

DWG. No	DESCRIPTION
REFERENCE	DRAWINGS

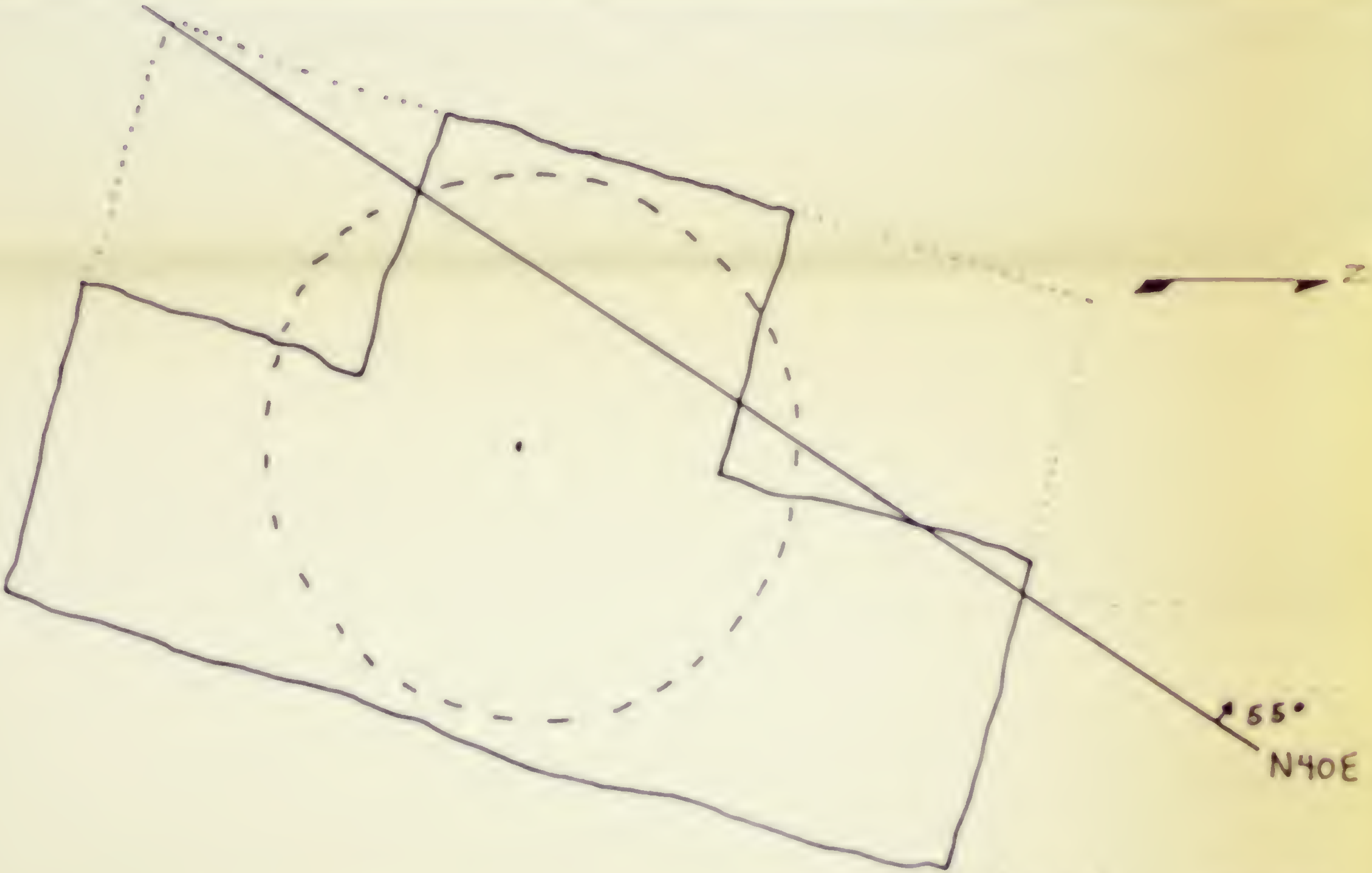
TITLE

REV.	DESCRIPTION	DRAWN	DATE	CHK'D	APPR	APPROVALS

DRAWN DATE
CHECKED DATE
APPROVED ENG
APPROVED
APPROVED

Cathedral Bluffs Shale Oil Company

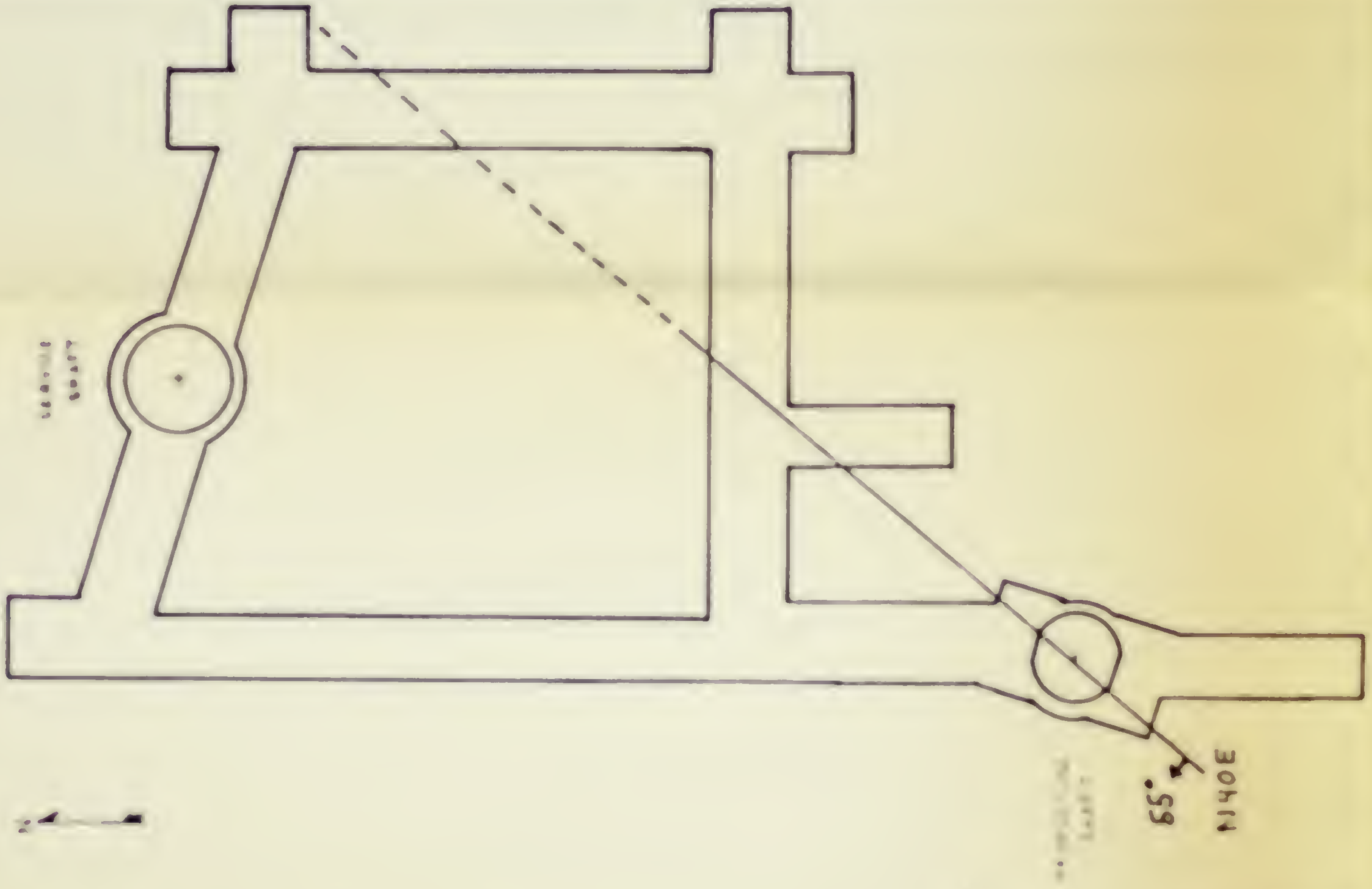
PROJECT No	SCALE	DRAWING No.	REV.



Cathedral Bluffs Shale Oil Company

LVL General Layout
AT 5208' Elev
Showing Fold Migration

Figure 4



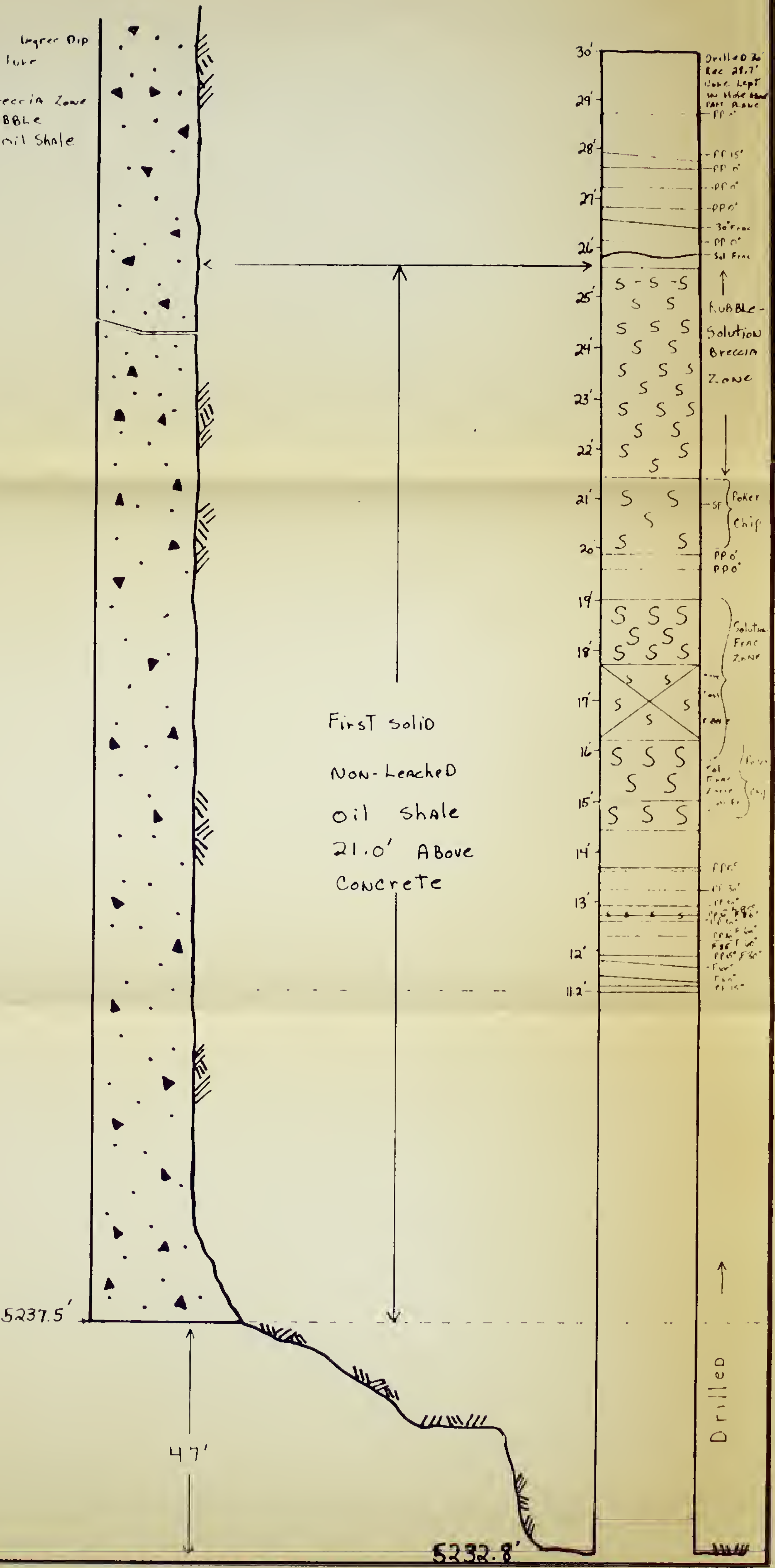
Cathedral Bluffs Shale Oil Company

LOWER VOID
LEVEL
ProD - Serv ShAFT

Figure 5

Legend:

PP o° = Parting Plane degree Dip
SF = Solution Fracture
F = Fracture
S = Solution Breccia Zone Mostly Rubble
PC = Poker chip oil Shale
☒ = Core Loss



REV.
DESCRIPTION
APPROVALS
PROJ. No
SCALE

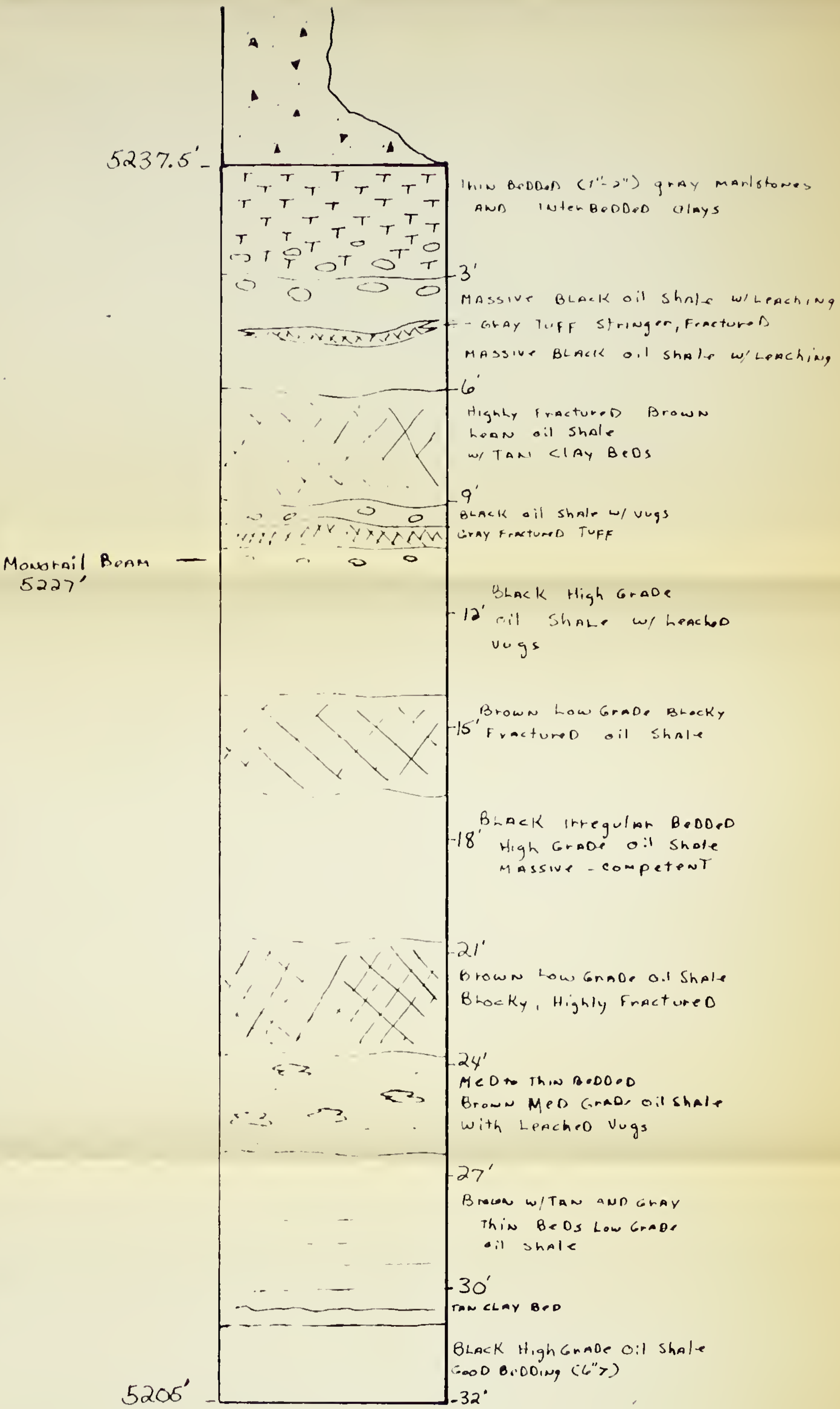
Cathedral Bluffs Shale Oil Company

DWG No
REFERENCE
DESCRIPTION
DRAWINGS

TITLE SE-LVL-ProDucT Sh. Up Core LithoLog

DWG No Figure 6

REV


5237.5'
Thin BeDDeD (1"-2") gray marlstones AND interBeDDeD clays
3'
Massive Black oil shale w/Leaching
Gray Tuff Stringer, FractureD
Massive Black oil shale w/Leaching
6'
Highly FractureD Brown Lean oil shale w/ Tan Clay BeDs
9'
Black oil shale w/ vugs
Gray FractureD Tuff
Monorail Beam 5227'
Black High GraDe oil Shale w/ LeacheD vugs
12'
Brown Low GraDe Blocky FractureD oil Shale
15'
Black Irregular BeDDeD High GraDe oil Shale Massive - competent
18'
21'
Brown Low GraDe Oil Shale Blocky, Highly FractureD
24'
MeD to Thin BeDDeD Brown MeD GraDe oil shale with LeacheD Vugs
27'
Brown w/Tan AND Gray Thin BeDs Low GraDe oil shale
30'
Tan Clay BeD
Black High GraDe Oil Shale GooD BeDDing (6"+)
5206'
32'

REV | DESCRIPTION | APPROVALS

Cathedral Bluffs Shale Oil Company

PROJ NO

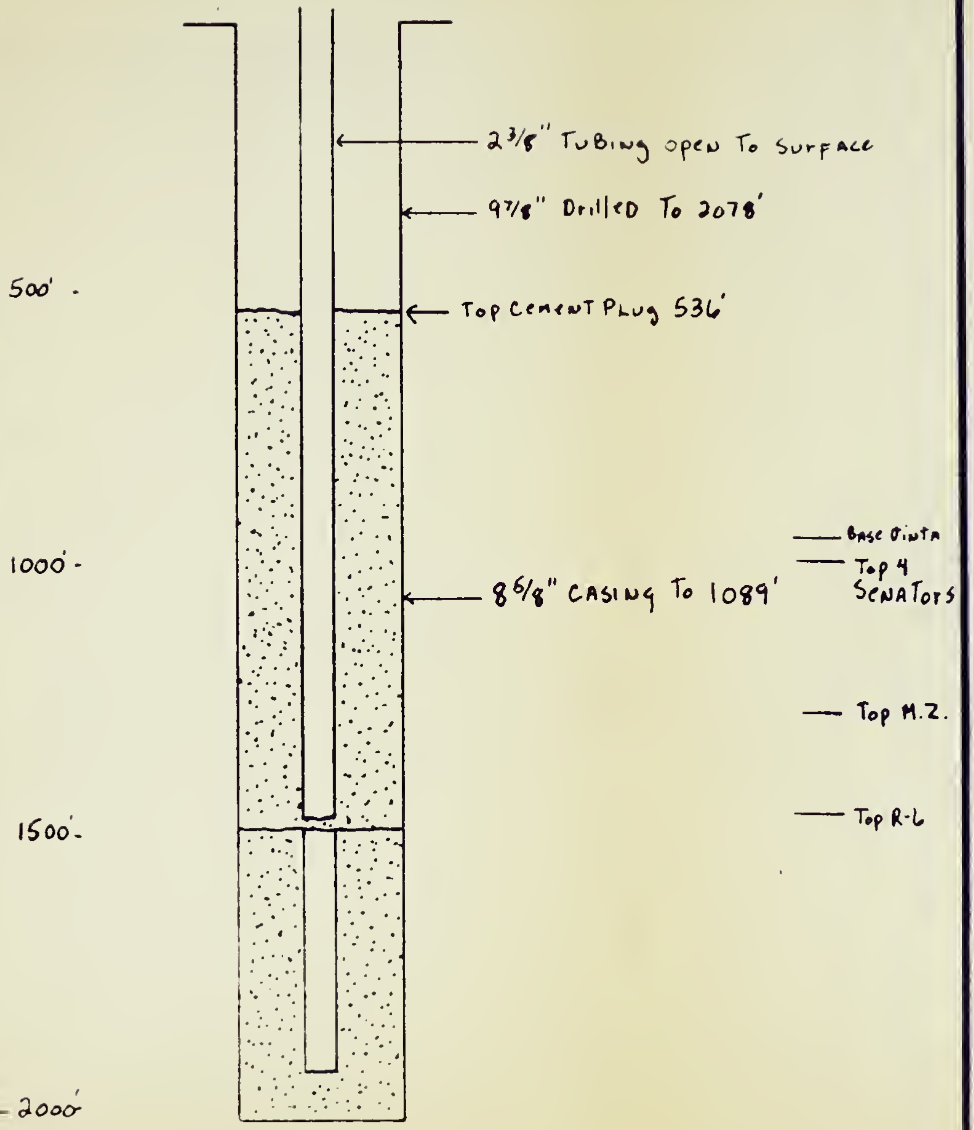
SCALE

DWG NO | REFERENCE | DESCRIPTION | DRAWINGS

TITLE Lithology Log from
Brow to Sill of
LVL ProDuction ShafT

DWG NO Figure 7

REV



Well 33x-1 Current Status

REV	DESCRIPTION	DRAWN	DATE	CHK'D	APPR

APPROVALS
DRAWN
DATE
CHECKED
DATE
APPROVED
ENG
APPROVED
APPROVED

Cathedral Bluffs Shale Oil Company

PROJ. No.

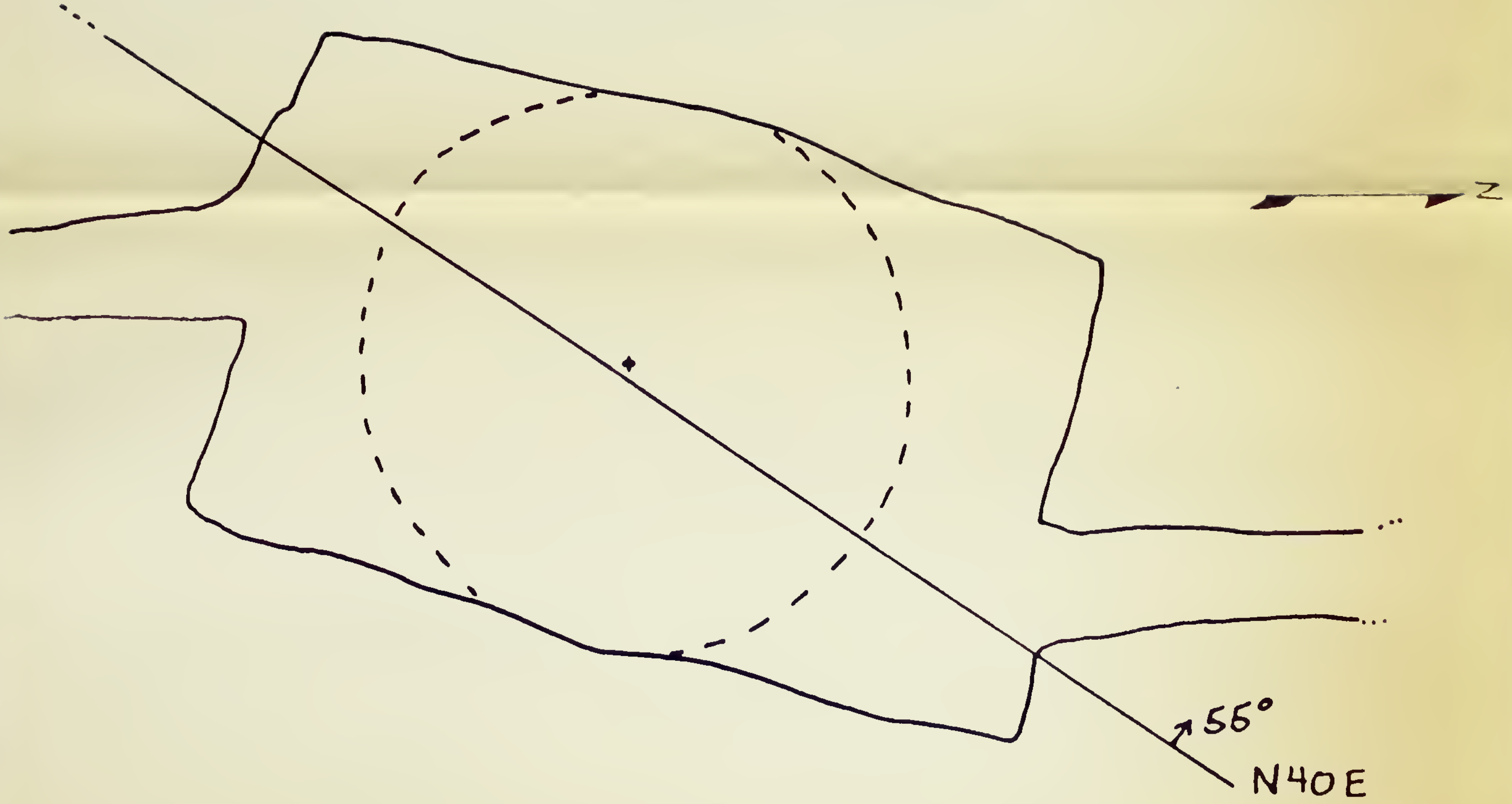
SCALE
Vert 1" = 300'

TITLE
33x-1 Current Status
1-9-80

DWG. No	REFERENCE DRAWINGS DESCRIPTION

DWG. No

REV



REV.	DESCRIPTION	DRAWN	DATE	CHK'D	APPR	APPROVALS
						DRAWN DATE
						CHECKED DATE
						APPROVED ENG
						APPROVED
						APPROVED

Cathedral Bluffs Shale Oil Company

PROJ. No.

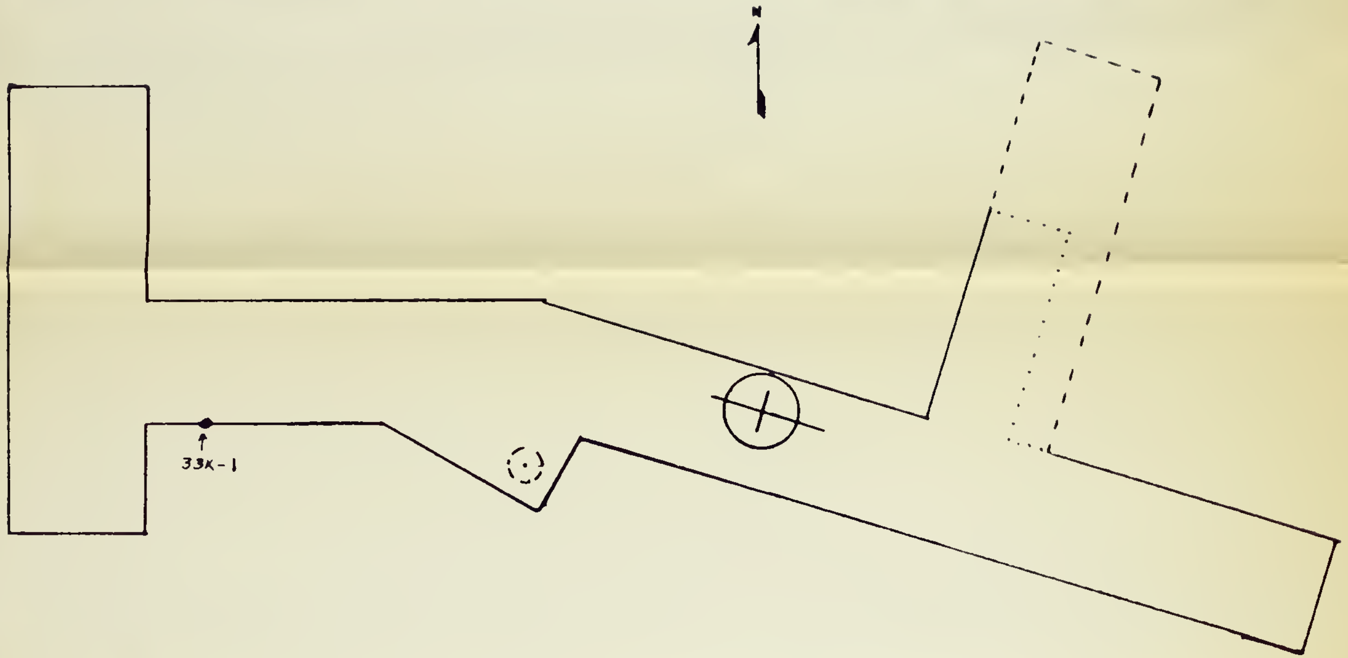
SCALE

DWG. No.	DESCRIPTION
REFERENCE	DRAWINGS

TITLE LVL General Layout
AT 5222' Elev.
Showing Fold

DWG. No. Figure 3

REV.



REV	DESCRIPTION	DRAWN	DATE	CHK'D	APPR	APPROVALS
						DRAWN DATE
						CHECKED DATE
						APPROVED ENG
						APPROVED
						APPROVED

DWG No	DESCRIPTION
REFERENCE	DRAWINGS

Cathedral Bluffs Shale Oil Company

PROJ No.

SCALE

TITLE
UPPER Void Level
V/E Shaft

DWG No Figure 9

REV

32x-12
33x-1
Pump installed in Well: No Data 11/79 - 5/80
Pump installed in Well: No Data 11/79 - 5/80
Cumulative Water Production Curve V/E + Serv. + Prod. Shafts
V/E
S/P Combined
5535
5540 - 3:15am
GPM
Elev.
ELEV
GPM
TIME
2200
6500
2100
2000
6400
1900
1800
6300
1700
1600
6200
1600
1400
6100
1300
1200
6000
1100
1000
5900
900
800
5800
700
600
5700
500
400
5600
300
200
100
0
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1/79
2
3
4
5
6
7
8
9
10
11
12
1/80
2
3
4
5
6
7
8
9
10
11
12
1/81
2
3
4
5
6
7
8
9
10
Serv. Tgl.
SERV. U.V.L
LPC; Suspended UVL - S/P Down
Serv UVL (P.M)
Prod. IVL
V/E #10
V/E UVL
SERV IVL
Prod L.V.L. - ORE Pocket
SERV IVL

Figure 10

88064820

TN
859
.C64
C37
no

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D-553A, Building 50
Denver Federal Center
P. O. Box 25047
Denver, CO 80225-0047

U. S. DEPARTMENT OF THE INTERIOR
PROTOTYPE OIL SHALE LEASING PROGRAM

OIL SHALE TRACT C-b
DEVELOPMENT MONITORING REPORT #6
(December 1980 through April 1981)

Submitted to:

Mr. Peter A Rutledge
Deputy Conservation Manager - Oil Shale
Conservation Division
U. S. Geological Survey
Grand Junction, Colorado

By:

CATHEDRAL BLUFFS SHALE OIL COMPANY

TENNECO SHALE OIL COMPANY
OCCIDENTAL OIL SHALE, INC., OPERATOR

July 15, 1981

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	2.1.2		Aerial Photography
	2.2	Hydrology and Water Quality	
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3.3 Scenic Values Study (Inactive)
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4.0 DATA AUTOMATION

4.1 Automation Status
4.2 Station Computer Code
4.3 Station Coordinates

5.0 SPECIAL REPORTS

6.0 REPORT DISTRIBUTION LIST

INTRODUCTION

Regular environmental reporting for Oil Shale Tract C-b in the current phase called Development Monitoring consists of the following reports:

REPORT	SUBMITTAL DATE
Six-Month Data Reports	January 15 July 15
Annual Report	April

Development Monitoring was initiated in April, 1978. Following is a list of semi-annual data reports which have been submitted to the Deputy Conservation Manager - Oil Shale.

Report #	Date Submitted	Period of Data
Development Monitoring Report #1	January 15, 1979	April 1978 - September 1978.
Development Monitoring #2	July 15, 1979	October 1978 - April 1979.
Time Series Plots	August 15, 1979	October 1978 - April 1979.
Development Monitoring #3	January 15, 1980	May 1979 - October 1979.
Time Series Plots	February 1980	May 1979 - October 1979.
Development Monitoring #4	July 15, 1980	November 1979 - May 1980.
Time Series Plots	August 1980	November 1979 - May 1980.
Development Monitoring #5	January 15, 1981	June 1980 - November 1980
Time Series Plots	March 31, 1981	June 1980 - November 1980

This present report, Development Monitoring Report #6, contains data from December 1980 through April 1981. The time series plots will be presented as a supplemental report for this reporting period, expected to follow this report in approximately one month.

In order to maintain accuracy in the data base and reports, for errors that are found requiring corrections from previously reported data, the following actions have been taken:

1) Summary tables in this report and the C-b computerized data base reflect corrected data to the best of our knowledge.

2) Cross-reference tables to data corrections and data corrections from the preceeding data report appear in this report.

3) Cumulative correction cross-reference tables are included in this report and the data corrections will appear in the next data report.

2.5 Biology

Studies required by the Developmental Monitoring plan are contained in this section and are listed in the table of contents.

Monitoring stations referenced in this section are located on Figure 2.5-1, Biological Development Monitoring Program.

All monitoring stations are referenced by four-digit computer station codes. A cross-reference of the computer codes and station ID appear in section 4.0 (Data Automation).

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2.5.1	Terrestrial Wildlife Studies	III-5
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2.5.1.4	Avifauna	III-15
2.5.2	Aquatic Studies	III-17
2.5.3	Terrestrial Vegetation Studies	III-139
2.5.4	Threatened & Endangered Species	III-141
2.5.5	Revegetation	III-143
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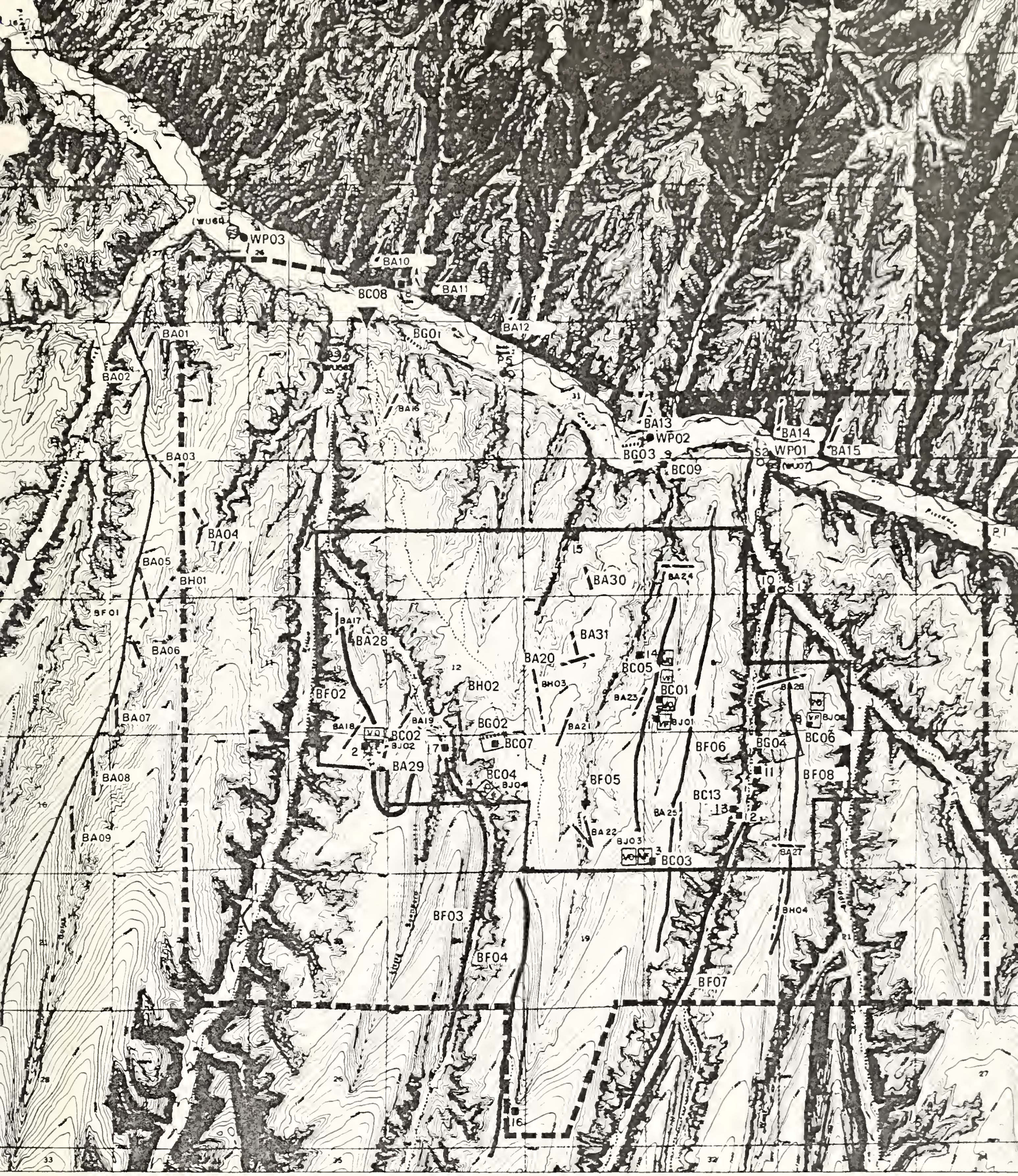
2.5.7	Dendrochronology & Dendroclimatology Studies	III-147



BIOLOGICAL DEVELOPMENT MONITORING PROGRAM

Figure 2.5-1

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2.5.1 Terrestrial Wildlife Studies

Studies were conducted during this report period for migrational patterns and phenology, road kills, natural mortaility, browse production and utilization studies, coyote abundance, lagomorph abundance, small mammal trapping, and the raptor nesting study. Some of these studies are continuing through the summer of 1981 and data results will be reported in the next data report.

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2.5.1.1 Big Game: Mule Deer

Scope of Work

Mule deer studies conducted during this sample period included: road counts, road kill counts, and an age class composition survey.

Methods

Mule Deer Road Counts

Mule deer road counts were conducted in the same manner as during baseline studies. A 41-mile length or road was driven (from Rio Blanco Store to Highway 64) and all deer observed were recorded within one-mile intervals. All counts were made during late evenings.

Road Kills

Mule deer road kill counts were conducted along the same 41-mile length of road as the mule deer road counts. The method used was described in the monitoring plan. The dead deer were aged, sexed and tagged.

Age Class Composition of Deer

Age class estimates of deer were obtained by observations of deer in the agricultural meadows near Piceance Creek during April 1981. Due to the mild winter and low deer population the deer did not concentrate in the meadows; therefore an age class count could not be conducted.

Results

Mule Deer Road Counts

Mule deer road count data are presented in Table 2.5.1.1-1 showing large concentrations of deer at Hunter Creek and near the Square S Ranch.

Road Kills

Road kill data are presented in Table 2.5.1.1-2 showing deer killed along the entire length of the 41-mile road.

Age Class Composition of Deer

Age class composition data of deer wintering near Tract C.B. are presented in Table 2.5.1.1-3.

Table 2.5.1.1-1

DEER ROAD COUNT

December 1980 - April 1981

MILES	80 DEC 4	11	81 JAN 8	15	22	29	FEB 5	19	27	MAR 12	19	26	APR 2	9	16	24	30
00							9								14	5	
02													2				
03													7				
04													10			1	
05													15		6		
06			1														
09							7					3					
10															9		
11												1	11				
12													6		1		
14														3	1		
15							1						3	2			
16	1									2			7				
17												3	9	8	48		
18								3			8		27	33	19	17	
19						5						13	37	26		11	
20										8	26	25	22	38	39	30	
21											9	29	4	10	18	3	
22										20		13	14	29	23	16	
23											1	17	6				
24												11	14		10	2	
25												25		26	26	2	
26								10			2	2					
27										5		5		22	10	17	
28										4			26	76	43	44	
29										9		37	30	32	7	54	
30											13	10	16	20	32	28	
31	1		2									1	2	106	43	25	
32															5		
33														7	8		
34												24		4	5	1	
35														1		7	
36																1	
37													10	6			
38												2	2	10	2		
39	8											12	8		3		
40										21		9		23	25	96	
41										7		16		12		1	
TOTAL	10		3			5	17	13		76	59	258	288	494	397	361	

Table 2.5.1.1-2

DEER ROAD KILL

December 1980 - April 1981

PAGE 1

	80			81													
	DEC			JAN				FEB			MAR				APR		
MILES	4	11	31	8	15	22	29	5	11	27	4	12	19	26	2	16	23
00																	
01																	
02																	
03																	
04																	
05																	
06																	
07																	
08																	
09																	
10																	
11																	
12																	
13																	
14																	
15	2																
16	2																
17																	1
18																1	
19																	
20																1	
21																	
22																1	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
31																	
32																	
33																	
34																	
35																	
36																	
37																	
38					1												
39																	
40																	
41																	
TOTAL	4				1											3	1

TABLE 2.5.1.3

Age Class Composition of Mule Deer Wintering Near Tract C-b.

Date	Fawns	Does	Bucks	Adults	Fawns/ 100 Does	Bucks/ 100 Does	Fawns/ 100 Adults
Nov. - NO COUNT							
Apr. 22-24, 1981	24			68			35.2

2.5.1.2 Medium-Sized Mammals

Scope of Work

Medium-sized mammal studies consist of coyote and lagomorph (cottontails and jackrabbits) abundance. Data results will be reported in the next data report.

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2.5.1.3 Small Mammals

Scope of Work

Small mammal studies consist of obtaining information on relative abundance, species composition, reproductive condition, and age-class. Data results will be reported in the next data report.

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2.5.1.4 Avifauna

Data results for Avifauna studies will be reported in the next data report.

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2.5.2 Aquatic Studies *

Aquatic sampling conducted during May 1980 through October 1980 consisted of periphyton and benthos sampling.

The raw data were presented in Tract C-b Development Monitoring Report #5, January 15, 1981. Analysis of these raw data are presented in the following pages:

---

* See previous data report(C-b Tract Development Monitoring Report #5, January 15,1981) and C-b Annual Analysis Report 1980 for the method fo analysis used for benthos and periphyton samples.

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  Station 3 WP03 III-27

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  Station 3 III-38

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October, 1980 (new) III-74

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September, 1980 (new)	III-132
October, 1980 (old)	III-134
October, 1980 (new)	III-136

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BENTHOS ANALYSIS

- Station 1 = Stewart Station (WP01)
- Station 2 = Middle Station (WP02)
- Station 3 = Hunter Station (WP03)

- May
- June
- August
- September (9/02/80)
- September (9/29/80)
- October

MAY

BENTHOS (MACROINVERTEBRATES) DENSITY AND SPECIES DIVERSITY CALCULATIONS

CATHEDRAL BLUFFS SHALE OIL COMPANY

STATION NUMBER - 1
STATION LOCATION - STEWART STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 051980
SIZE OF SAMPLE - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	.0	11.1	.0	3.7	6.4	16.7
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	22.2	.0	11.1	11.1	11.1	50.0
ORDER COLEOPTERA						
FAMILY HALIPLIDAE						
BRYCHIUS THOMSON	11.1	.0	.0	3.7	6.4	16.7
ORDER DIPTERA						
FAMILY TIPULIDAE						
HEXATOMA LATRETILLE	11.1	.0	.0	3.7	6.4	16.7
TOTAL	44.4	11.1	11.1	22.2	19.2	100.0

```
SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                            .0        .0        .0        .0        .0           .0
CLASS OLIGOCHAETA                          .0      11.1        .0       3.7       6.4         16.7
ORDER EPHEMEROPTERA                      22.2        .0      11.1      11.1      11.1         50.0
ORDER ODONATA                              .0        .0        .0        .0        .0           .0
ORDER PLECOPTERA                           .0        .0        .0        .0        .0           .0
ORDER COLEOPTERA                         11.1        .0        .0       3.7       6.4         16.7
ORDER TRICHOPTERA                          .0        .0        .0        .0        .0           .0
FAMILY CHIRONOMIDAE                        .0        .0        .0        .0        .0           .0
PHYLUM MOLLUSCA                            .0        .0        .0        .0        .0           .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.242
VARIANCE      -  .0136
MAXIMUM INDEX - 1.386
EVENNESS      -  .896
NO OF SPECIES -     4

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STATION NUMBER - 2
STATION LOCATION - MIDDLE STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 051980
SIZE OF SAMPLE -    .09 M2

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                                                            DENSITY(#/M2)                             PERCENT
 TAXON                                              REP 1     REP 2     REP 3     MEAN      S.D.   RELATIVE ABUNDANCE
------------------------------------------------------------------------------------------------------------------------

PHYLUM ANNELIDA
 CLASS OLIGOCHAETA
  ORDER HAPLOTAXIDA
    FAMILY TUBIFICIDAE
       TUBIFEX TUBIFEX                              88.9        .0        .0     29.6      51.3        40.0
    FAMILY LUMBRICULIDAE                            11.1        .0        .0      3.7       6.4         5.0
PHYLUM ARTHROPODA
 CLASS INSECTA
  ORDER EPHEMEROPTERA
    FAMILY BAETIDAE
       BAETIS INSIGNIFICANS   MCDONNOUGH              .0        .0      11.1      3.7       6.4         5.0
    FAMILY EPHEMERELLIDAE
       EPHEMERELLA INERMIS   EATON                  22.2      11.1        .0     11.1      11.1        15.0
  ORDER COLEOPTERA
    FAMILY ELMIDAE
       OPTIOSERVUS                                    .0      22.2        .0      7.4      12.8        10.0
  ORDER TRICHOPTERA
    FAMILY GLOSSOSOMATIDAE
       GLOSSOSOMA    CURTIS                           .0        .0      11.1      3.7       6.4         5.0
  ORDER DIPTERA
    FAMILY TIPULIDAE
       HEXATOMA    LATREILLE                        11.1        .0        .0      3.7       6.4         5.0
    FAMILY STRATIOMYIDAE
       EUPARYPHUS                                     .0      11.1        .0      3.7       6.4         5.0
PHYLUM MOLLUSCA
 CLASS GASTROPODA
    FAMILY LYMNAEIDAE
       LYMNAEA                                      11.1        .0      11.1      7.4       6.4        10.0

  TOTAL                                            144.4      44.4      33.3     74.1      61.2       100.0
-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                              .0        .0        .0        .0        .0            .0
CLASS OLIGOCHAETA                         100.0        .0        .0      33.3      57.7          45.0
ORDER EPHEMEROPTERA                        22.2      11.1      11.1      14.8       6.4          20.0
ORDER ODONATA                                .0        .0        .0        .0        .0            .0
ORDER PLECOPTERA                             .0        .0        .0        .0        .0            .0
ORDER COLEOPTERA                             .0      22.2        .0       7.4      12.8          10.0
ORDER TRICHOPTERA                            .0        .0      11.1       3.7       6.4           5.0
FAMILY CHIRONOMIDAE                          .0        .0        .0        .0        .0            .0
PHYLUM MOLLUSCA                            11.1        .0      11.1       7.4       6.4          10.0

-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.861
VARIANCE      -  .0097


MAXIMUM INDEX - 2.197
EVENNESS      -  .847
NO OF SPECIES -     9

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STATION NUMBER - 3
STATION LOCATION - HUNTER STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 051980
SIZE OF SAMPLE - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	55.6	33.3	444.4	177.8	23 .2	9.6
LIMNODRILUS HOFFMEISTERI	400.0	322.2	4222.2	1648.1	222 6	89.0
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS INSIGNIFICANS MCDONNOUGH	.0	11.1	.0	3.7	. 4	.2
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	33.3	22.2	.0	18.5	1 0	1.0
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	11.1	.0	.0	3.7	.4	.2
TOTAL	500.0	388.9	4666.7	1851.9	243 3	100.0

SUMMARY - MAJOR BENTHOS TAXA

	REP 1	REP 2	REP 3	MEAN	.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM NEMATODA	.0	.0	.0	.0	0	.0
CLASS OLIGOCHAETA	455.6	355.6	4666.7	1825.9	246 7	98.6
ORDER EPHEMEROPTERA	33.3	33.3	.0	22.2	1 2	1.2
DER ODONATA	.0	.0	.0	.0	0	.0
DER PLECOPTERA	.0	.0	.0	.0	0	.0
DER COLEOPTERA	11.1	.0	.0	3.7	4	.2
RDER TRICHOPTERA	.0	.0	.0	.0	.0	.0
AMILY CHIRONOMIDAE	.0	.0	.0	.0	0	.0
HYLUM MOLLUSCA	.0	.0	.0	.0	.0	.0

BENTHOS (MACROINVERTEBRATES) DENSITY AND SPECIES DIVERSITY CALCULATIONS

ATHEDRAL BLUFFS SHALE OIL COMPANY

JUNE

BENTHOS (MACROINVERTEBRATES) DENSITY AND SPECIES DIVERSITY CALCULATIONS

CATHEDRAL BLUFFS SHALE OIL COMPANY

STATION NUMBER - 1
STATION LOCATION - STEWART STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 062780
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	 REP 2	 REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	.0	66.7	44.4	37.0	33.9	9.9
LIMNODRILUS HOFFMEISTERI	22.2	11.1	.0	11.1	11.1	3.0
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER COLLEMBOLA	.0	.0	11.1	3.7	6.4	1.
ORDER EPHEMEROPTERA						
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	277.8	366.7	.0	214.8	191.3	57.4
ORDER PLECOPTERA						
FAMILY PERLODIDAE						
ISOPERLA BANKS	11.1	.0	11.1	7.4	6.4	2.0
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	11.1	22.2	.0	11.1	11.1	3.0
FAMILY HALIPLIDAE						
BRYCHIUS THOMSON	.0	11.1	.0	3.7	6.4	1.
ORDER TRICHOPTERA						
FAMILY HYDROPSYCHIDAE						
HYDROPSYCHE PICTET	11.1	22.2	22.2	18.5	6.4	5.0
FAMILY LIMNEPHILIDAE						
HESPEROPHYLAX BANKS	11.1	.0	11.1	7.4	6.4	2.0
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY CHIRONOMINAE						
TRIBE TANYTARSINI						
CHIRONOMIDAE PUPAE	.0	11.1	.0	3.7	6.4	1.
FAMILY TIPULIDAE						
HEXATOMA LATREILLE	22.2	77.8	22.2	40.7	32.1	10.9
TIPULA LINNAEUS	11.1	33.3	.0	14.8	17.0	4.0
TOTAL	377.8	622.2	122.2	374.1	250.0	100.0

```
SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                       .0      .0      .0      .0      .0          .0
CLASS OLIGOCHAETA                   22.2    77.8    44.4    48.1    28.0        12.9
ORDER EPHEMEROPTERA                277.8   366.7      .0   214.8   191.3        57.4
ORDER ODONATA                         .0      .0      .0      .0      .0          .0
ORDER PLECOPTERA                    11.1      .0    11.1     7.4     6.4         2.0
ORDER COLEOPTERA                    11.1    33.3      .0    14.8    17.0         4.0

ORDER TRICHOPTERA                   22.2    22.2    33.3    25.9     6.4         6.9
FAMILY CHIRONOMIDAE                   .0    11.1      .0     3.7     6.4         1.
PHYLUM MOLLUSCA                       .0      .0      .0      .0      .0          .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.567
VARIANCE      -  .0043
MAXIMUM INDEX - 2.485
EVENNESS      -  .631
NO OF SPECIES -    12

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STATION NUMBER - 2
STATION LOCATION - MIDDLE STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 062780
SIZE OF SAMPLER -    .09 M2

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                                                       DENSITY(#/M2)                          PERCENT
 TAXON                                        REP 1    REP 2    REP 3     MEAN     S.D.    RELATIVE ABUNDANCE
------------------------------------------------------------------------------------------------------------------------

PHYLUM NEMATODA                                11.1       .0       .0      3.7      6.4           .5
PHYLUM ANNELIDA
 CLASS OLIGOCHAETA
  ORDER HAPLOTAXIDA
   FAMILY TUBIFICIDAE
      TUBIFEX TUBIFEX                            .0     11.1     44.4     18.5     23.1          2.3
PHYLUM ARTHROPODA
 CLASS INSECTA
  ORDER COLLEMBOLA                             11.1       .0       .0      3.7      6.4           .5
  ORDER DIPTERA
   FAMILY CHIRONOMIDAE
     SUBFAMILY DIAMESINAE
      TRIBE DIAMESINI
        DIAMESA  MEIGEN                       111.1   1100.0    988.9    733.3    541.7         89.2
     SUBFAMILY CHIRONOMINAE
      TRIBE TANYTARSINI
        RHEOTANYTARSUS   BAIUSE                11.1     11.1       .0      7.4      6.4           .9
        CHIRONOMIDAE PUPAE                     11.1     44.4     66.7     40.7     28.0          5.0
   FAMILY TIPULIDAE
        HEXATOMA   LATRETILLE                    .0     11.1     33.3     14.8     17.0          1.8

  TOTAL                                       155.6   1177.8   1133.3    822.2    577.8        100.0
-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -

SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                                11.1       .0       .0      3.7      6.4           .5
CLASS OLIGOCHAETA                                .0     11.1     44.4     18.5     23.1          2.3
ORDER EPHEMEROPTERA                              .0       .0       .0       .0       .0           .0
ORDER ODONATA                                    .0       .0       .0       .0       .0           .0
ORDER PLECOPTERA                                 .0       .0       .0       .0       .0           .0
ORDER COLEOPTERA                                 .0       .0       .0       .0       .0           .0
ORDER TRICHOPTERA                                .0       .0       .0       .0       .0           .0
FAMILY CHIRONOMIDAE                           133.3   1155.6   1055.6    781.5    563.5         95.0


PHYLUM MOLLUSCA                                  .0       .0       .0       .0       .0           .0


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DIVERSITY INDEX CALCULATIONS
----------------------------

SHANNON INDEX -  .500
VARIANCE      -  .0016
MAXIMUM INDEX - 1.946
EVENNESS      -  .257
NO OF SPECIES -     7
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STATION NUMBER - 3
STATION LOCATION - HUNTER STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 062780
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	 REP 2	 REP 3	 MEAN	 S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	77.8	44.4	33.3	51.9	23.1	46.7
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS INSIGNIFICANS MCDONNOUGH	.0	11.1	.0	3.7	6.4	3.3
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	.0	.0	11.1	3.7	6.4	3.3
FAMILY TRICORYTHIDAE						
TRICORYTHODES ULMER	11.1	.0	.0	3.7	6.4	3.3
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	11.1	.0	.0	3.7	6.4	3.3
FAMILY DYTISCIDAE						
AGABUS LEACH	.0	.0	11.1	3.7	6.4	3.3
ORDER TRICHOPTERA						
FAMILY LIMNEPHILIDAE						
HESPEROPHYLAX BANKS	11.1	.0	.0	3.7	6.4	3.3
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY DIAMESINAE						
TRIBE DIAMESINI						
DIAMESA MEIGEN	.0	55.6	.0	18.5	32.1	16.7
SUBFAMILY ORTHOCLADIINAE						
TRIBES ORTHODLADIINI AND METRIOCNE						
ORTHOCLADIUS VAN DER WULP	.0	.0	11.1	3.7	6.4	3.3
FAMILY TIPULIDAE						
HEXATOMA LATRETILLE	.0	.0	44.4	14.8	25.7	13.3
TOTAL	111.1	111.1	111.1	111.1	.0	100.0

```
SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                      .0      .0      .0     .0     .0          .0
CLASS OLIGOCHAETA                  77.8    44.4    33.3   51.9   23.1        46.7
ORDER EPHEMEROPTERA                11.1    11.1    11.1   11.1     .0        10.0
ORDER ODONATA                        .0      .0      .0     .0     .0          .0
ORDER PLECOPTERA                     .0      .0      .0     .0     .0          .0
ORDER COLEOPTERA                   11.1      .0    11.1    7.4    6.4         6.7
ORDER TRICHOPTERA                  11.1      .0      .0    3.7    6.4         3.3
FAMILY CHIRONOMIDAE                  .0    55.6    11.1   22.2   29.4        20.0
PHYLUM MOLLUSCA                      .0      .0      .0     .0     .0          .0


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DIVERSITY INDEX CALCULATIONS
----------------------------

SHANNON INDEX - 1.717
VARIANCE      -  .0099
MAXIMUM INDEX - 2.303
EVENNESS      -  .745
NO OF SPECIES -    10

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AUGUST

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BENTHOS (MACROINVERTEBRATES) DENSITY AND SPECIES DIVERSITY CALCULATIONS
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CATHEDRAL BLUFFS SHALE OIL COMPANY


STATION NUMBER - I
STATION LOCATION - STEWART STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 080180
SIZE OF SAMPLER -    .09 M2

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                                                                 DENSITY(#/M2)                          PERCENT
 TAXON                                              REP 1      REP 2      REP 3     MEAN      S.D.   RELATIVE ABUNDANCE
------------------------------------------------------------------------------------------------------------------

PHYLUM ANNELIDA
 CLASS OLIGOCHAETA
  ORDER HAPLOTAXIDA
    FAMILY TUBIFICIDAE
       TUBIFEX TUBIFEX                               11.1       11.1         .0      7.4       6.4          1.9
       LIMNODRILUS   HOFFMEISTERI                    88.9       22.2       11.1     40.7      42.1         10.2
PHYLUM ARTHROPODA
 CLASS INSECTA
  ORDER EPHEMEROPTERA
    FAMILY BAETIDAE
       BAETIS INSIGNIFICANS   MCDUNNOUGH             11.1         .0       22.2     11.1      11.1          2.8
       BAETIS TRICAUDATUS   DODDS                    11.1         .0         .0      3.7       6.4           .9
    FAMILY EPHEMERELLIDAE
       EPHEMERELLA INERMIS   EATON                   11.1         .0       11.1      7.4       6.4          1.9
  ORDER COLEOPTERA
    FAMILY ELMIDAE
       OPTIOSERVUS                                     .0         .0       11.1      3.7       6.4           .9
  ORDER DIPTERA
    FAMILY CHIRONOMIDAE
     SUBFAMILY DIAMESINAE
      TRIBE DIAMESINI
       DIAMESA  MEIGEN                              288.9      277.8       77.8    214.8     118.8         53.7
     SUBFAMILY ORTHOCLADIINAE
      TRIBES ORTHOCLADIINI AND METRIOCNE
       ORTHOCLADIUS  VAN DER WULP                      .0       22.2         .0      7.4      12.6          1.9
     SUBFAMILY CHIRONOMINAE
      TRIBE TANYTARSINI
       CHIRONOMIDAE PUPAE                            88.9       11.1       66.7     55.6      40.1         13.9
    FAMILY SIMULIIDAE
       SIMULIUM LARVAE                                 .0         .0       33.3     11.1      19.2          2.8
    FAMILY TIPULIDAE
       HEXATOMA    LATREILLE                         55.6       11.1       11.1     25.9      25.7          6.5
       TIPULA   LINNAEUS                             11.1         .0       22.2     11.1      11.1          2.8

  TOTAL                                             577.8      355.6      266.7    400.0     160.2        100.0
-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
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SUMMARY - MAJOR BENTHOS TAXA
                                              .0         .0         .0        .0        .0              .0
PHYLUM NEMATODA                            100.0       33.3       11.1      48.1      46.3            12.0
CLASS OLIGOCHAETA                           33.3         .0       33.3      22.2      19.2             5.6
ORDER EPHEMEROPTERA                           .0         .0         .0        .0        .0              .0
ORDER ODONATA                                 .0         .0         .0        .0        .0              .0
ORDER PLECOPTERA                              .0         .0       11.1       3.7       6.4              .9
ORDER COLEOPTERA

                .                             .0         .0         .0        .0        .0              .0
ORDER TRICHOPTERA                          377.8      311.1      144.4     277.8     120.2            69.4
FAMILY CHIRONOMIDAE                           .0         .0         .0        .0        .0              .0
PHYLUM MOLLUSCA

-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -
DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.625
VARIANCE      -  .0037
MAXIMUM INDEX - 2.485
EVENNESS      -  .654
NO OF SPECIES -    12
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STATION NUMBER - 2
STATION LOCATION - MIDDLE STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 080180
SIZE OF SAMPLER -    .09 M2

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                                                          DENSITY(#/M2)                          PERCENT
 TAXON                                          REP 1     REP 2     REP 3     MEAN      S.D.   RELATIVE ABUNDANCE
------------------------------------------------------------------------------------------------------------

PHYLUM ANNELIDA
 CLASS OLIGOCHAETA
  ORDER HAPLOTAXIDA
    FAMILY TUBIFICIDAE
       TUBIFEX TUBIFEX                          333.3     777.8      77.8     396.3     354.2        22.4
       LIMNODRILUS   HOFFMEISTERI                55.6      55.6      88.9      66.7      19.2         3.8
PHYLUM ARTHROPODA
 CLASS INSECTA
  ORDER DIPTERA
    FAMILY CHIRONOMIDAE
     SUBFAMILY ORTHOCLADIINAE
      TRIBES ORTHODLADIINI AND METRIOCNE
       ORTHOCLADIUS  VAN DER WULP               333.3     366.7     300.0     333.3      33.3        18.9
     SUBFAMILY CHIRONOMINAE
      TRIBE CHIRONOMINI
       TRIBELOS                                 866.7     900.0     522.2     763.0     209.2        43.2
      TRIBE TANYTARSINI
       MICROPSECTRA  KIEFFER                     88.9      66.7     122.2      92.6      28.0         5.2
       CHIRONOMIDAE PUPAE                       177.8      33.3     133.3     114.8      74.0         6.5

  TOTAL                                        1855.6    2200.0    1244.4    1766.7     483.9       100.0
 -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -

SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                                    .0        .0        .0        .0        .0          .0
CLASS OLIGOCHAETA                               388.9     833.3     166.7     463.0     339.5        26.2
ORDER EPHEMEROPTERA                                .0        .0        .0        .0        .0          .0
ORDER ODONATA                                      .0        .0        .0        .0        .0          .0
ORDER PLECOPTERA                                   .0        .0        .0        .0        .0          .0
ORDER COLEOPTERA                                   .0        .0        .0        .0        .0          .0
ORDER TRICHOPTERA                                  .0        .0        .0        .0        .0          .0
FAMILY CHIRONOMIDAE                            1466.7    1366.7    1077.8    1303.7     201.9        73.8
PHYLUM MOLLUSCA                                    .0        .0        .0        .0        .0          .0



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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.468
VARIANCE      -  .0003
MAXIMUM INDEX - 1.792
EVENNESS      -  .820
NO OF SPECIES -     6

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STATION NUMBER - 3
STATION LOCATION - HUNTER STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 090180
SIZE OF SAMPLER -    .09 M2

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                                                              DENSITY(#/M2)                              PERCENT
 TAXON                                               REP 1     REP 2     REP 3      MEAN       S.D.   RELATIVE ABUNDANCE
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PHYLUM ANNELIDA
 CLASS OLIGOCHAETA
  ORDER HAPLOTAXIDA
    FAMILY TUBIFICIDAE
       TUBIFEX TUBIFEX                                33.3      55.6        .0      29.6      28.0             13.6
       LIMNODRILUS   HOFFMEISTERI                     44.4     444.4      33.3     174.1     234.2             79.7
PHYLUM ARTHROPODA
 CLASS INSECTA
  ORDER DIPTERA
    FAMILY CHIRONOMIDAE
     SUBFAMILY ORTHOCLADIINAE
      TRIBES ORTHOCLADIINI AND METRIOCNE
       ORTHOCLADIUS  VAN DER WULP                     11.1        .0        .0       3.7       6.4              1.7
     SUBFAMILY CHIRONOMINAE
      TRIBE CHIRONOMINI
       TRIBELOS                                       11.1        .0        .0       3.7       6.4              1.7
      TRIBE TANYTARSINI
       CHIRONOMIDAE PUPAE                             22.2        .0        .0       7.4      12.8              3.4

  TOTAL                                              122.2     500.0      33.3     218.5     247.8            100.0
 -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -

SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                                         .0        .0        .0        .0        .0               .0
CLASS OLIGOCHAETA                                     77.8     500.0      33.3     203.7     257.6             93.2
ORDER EPHEMEROPTERA                                     .0        .0        .0        .0        .0               .0
ORDER ODONATA                                           .0        .0        .0        .0        .0               .0
ORDER PLECOPTERA                                        .0        .0        .0        .0        .0               .0
ORDER COLEOPTERA                                        .0        .0        .0        .0        .0               .0
ORDER TRICHOPTERA                                       .0        .0        .0        .0        .0               .0
FAMILY CHIRONOMIDAE                                   44.4        .0        .0      14.8      25.7              6.8
PHYLUM MOLLUSCA                                         .0        .0        .0        .0        .0               .0


 -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -
DIVERSITY INDEX CALCULATIONS


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SHANNON INDEX -   .705
VARIANCE      -   .0047
MAXIMUM INDEX - 1.609
EVENNESS      -   .438
NO OF SPECIES -      5

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SEPTEMBER (9/02/80)

BENTHOS (MACROINVERTEBRATES) DENSITY AND SPECIES DIVERSITY CALCULATIONS

CATHEDRAL BLUFFS SHALE OIL COMPANY

STATION NUMBER - I
STATION LOCATION - STEWART STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 090280
SIZE OF SAMPLER - .09 M2

TAXON	REP 1	DENSITY(#/M2) REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	11.1	922.2	233.3	388.9	475.1	21.2
FAMILY NAIDIDAE	111.1	1666.7	477.8	751.9	813.2	40.9
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS LEACH	188.9	277.8	88.9	185.2	94.5	10.1
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	.0	11.1	.0	3.7	6.4	.2
ORDER TRICHOPTERA						
FAMILY HYDROPSYCHIDAE						
HYDROPSYCHE PICTET	.0	55.6	33.3	29.6	28.0	1.6
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY ORTHOCLADIINAE						
TRIBES ORTHOCLADIINI AND METRIOCNE						
CRICOTOPUS VAN DER WULP	166.7	311.1	155.6	211.1	86.8	11.5
EUKIEFFERIELLA THIENEMANN	22.2	44.4	22.2	29.6	12.8	1.6
ORTHOCLADIUS VAN DER WULP	44.4	300.0	122.2	155.6	131.0	8.5
SUBFAMILY CHIRONOMINAE						
TRIBE TANYTARSINI						
CHIRONOMIDAE PUPAE	11.1	44.4	33.3	29.6	17.0	1.6
FAMILY TIPULIDAE						
HEXATOMA LATREILLE	22.2	100.0	22.2	48.1	44.9	2.6
FAMILY STRATIOMYIDAE						
EUPARYPHUS	.0	11.1	.0	3.7	6.4	.2
TOTAL	577.8	3744.4	1188.9	1837.0	1679.9	100.0

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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                        .0       .0       .0      .0      .0          .0
CLASS OLIGOCHAETA                   122.2   2588.9    711.1  1140.7  1288.2        62.1
ORDER EPHEMEROPTERA                 188.9    277.8     88.9   185.2    94.5        10.1
ORDER ODONATA                          .0       .0       .0      .0      .0          .0
ORDER PLECOPTERA                       .0       .0       .0      .0      .0          .0
ORDER COLEOPTERA                       .0     11.1       .0     3.7     6.4          .2
ORDER TRICHOPTERA                      .0     55.6     33.3    29.6    28.0         1.6
FAMILY CHIRONOMIDAE                 244.4    700.0    333.3   425.9   241.5        23.2


PHYLUM MOLLUSCA                        .0       .0       .0      .0      .0          .0


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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.703
VARIANCE      -  .0005
MAXIMUM INDEX - 2.398
EVENNESS      -  .710
NO OF SPECIES -    11

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STATION NUMBER - 2
STATION LOCATION - MIDDLE STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 090280
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	.0	133.3	55.6	63.0	67.0	7.8
FAMILY NAIDIDAE	.0	255.6	88.9	114.8	129.7	14.3
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS LEACH	55.6	111.1	188.9	118.5	67.0	14.7
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	.0	.0	11.1	3.7	6.4	.5
FAMILY TRICORYTHIDAE						
TRICORYTHODES ULMER	111.1	33.3	111.1	85.2	44.9	10.6
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	.0	11.1	33.3	14.8	17.0	1.8
FAMILY DYTISCIDAE						
AGABUS LEACH	22.2	.0	.0	7.4	12.8	.9
ORDER TRICHOPTERA						
FAMILY HYDROPSYCHIDAE						
HYDROPSYCHE PICTET	.0	.0	22.2	7.4	12.8	.9
FAMILY HYDROPTILIDAE						
HYDROPTILA DALMAN	.0	11.1	.0	3.7	6.4	.5
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY ORTHOCLADIINAE						
TRIBES ORTHOCLADIINI AND METRIOCNE						
CRICOTOPUS VAN DER WULP	.0	188.9	44.4	77.8	98.8	9.7
EUKIEFFERIELLA THIENEMANN	.0	77.8	111.1	63.0	57.0	7.8
ORTHOCLADIUS VAN DER WULP	.0	200.0	33.3	77.8	107.2	9.7
SUBFAMILY CHIRONOMINAE						
TRIBE CHIRONOMINI						
TRIBELOS	.0	100.0	44.4	48.1	50.1	6.0
TRIBE TANYTARSINI						
CHIRONOMIDAE PUPAE	.0	44.4	55.6	33.3	29.4	4.1
FAMILY SIMULIIDAE						
SIMULIUM ARCTICUM MALLOCH (PUPAE	22.2	22.2	122.2	55.6	57.7	6.9
SIMULIUM LARVAE	.0	44.4	.0	14.8	25.7	1.8
FAMILY MUSCIDAE						
LIMNOPHORA ROBINEAU-DESVOIDY	.0	.0	11.1	3.7	6.4	.5
FAMILY TIPULIDAE						
HEXATOMA LATREILLE	.0	11.1	11.1	7.4	6.4	.9
TIPULA LINNAEUS	11.1	.0	.0	3.7	6.4	.5
TOTAL	222.2	1244.4	944.4	803.7	525.4	100.0

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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                         .0      .0      .0      .0      .0          .0
CLASS OLIGOCHAETA                       .0   388.9   144.4   177.8   196.6        22.1
ORDER EPHEMEROPTERA                  166.7   144.4   311.1   207.4    90.5        25.8
ORDER ODONATA                           .0      .0      .0      .0      .0          .0
ORDER PLECOPTERA                        .0      .0      .0      .0      .0          .0
ORDER COLEOPTERA                      22.2    11.1    33.3    22.2    11.1         2.8
ORDER TRICHOPTERA                       .0    11.1    22.2    11.1    11.1         1.4
FAMILY CHIRONOMIDAE                     .0   611.1   288.9   300.0   305.7        37.3
PHYLUM MOLLUSCA                         .0      .0      .0      .0      .0          .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 2.510
VARIANCE      -  .0006
MAXIMUM INDEX - 2.944
EVENNESS      -  .853
NO OF SPECIES -    19

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STATION NUMBER - 3
STATION LOCATION - HUNTER STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 090280
SIZE OF SAMPLER -    .09 M2

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                                                                DENSITY(#/M2)                               PERCENT
 TAXON                                                 REP 1       REP 2      REP 3      MEAN       S.D.    RELATIVE ABUNDANCE
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PHYLUM ANNELIDA
 CLASS OLIGOCHAETA
  ORDER HAPLOTAXIDA
    FAMILY TUBIFICIDAE
       TUBIFEX TUBIFEX                                  88.9        44.4       44.4      59.3       25.7          26.7
    FAMILY NAIDIDAE                                    122.2       100.0      133.3     118.5       17.0          53.3
PHYLUM ARTHROPODA
 CLASS INSECTA
  ORDER EPHEMEROPTERA
    FAMILY BAETIDAE
       BAETIS   LEACH                                   11.1        11.1       11.1      11.1         .0           5.0
    FAMILY EPHEMERELLIDAE
       EPHEMERELLA INERMIS    EATON                       .0          .0       11.1       3.7        6.4           1.7


    FAMILY TRICORYTHIDAE
       TRICORYTHODES   ULMER                            11.1          .0         .0       3.7        6.4           1.7
  ORDER DIPTERA
    FAMILY CHIRONOMIDAE
      SUBFAMILY ORTHOCLADIINAE
       TRIBES ORTHODLADIINI AND METRIOCNE
        CRICOTOPUS     VAN DER WULP                       .0        11.1         .0       3.7        6.4           1.7
      SUBFAMILY CHIRCNOMINAE
       TRIBE TANYTARSINI
        CHIRONOMIDAE PUPAE                                .0          .0       22.2       7.4       12.8           3.3
    FAMILY SIMULIIDAE
       SIMULIUM LARVAE                                  11.1        11.1         .0       7.4        6.4           3.3
    FAMILY TIPULIDAE
       HEXATOMA   LATREILLE                             11.1        11.1         .0       7.4        6.4           3.3

  TOTAL                                                255.6       188.9      222.2     222.2       33.3         100.0
-    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -    -
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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                          .0      .0      .0      .0      .0          .0
CLASS OLIGOCHAETA                     211.1   144.4   177.8   177.8    33.3        60.0
ORDER EPHEMEROPTERA                    22.2    11.1    22.2    18.5     6.4         8.3
ORDER ODONATA                            .0      .0      .0      .0      .0          .0
ORDER PLECOPTERA                         .0      .0      .0      .0      .0          .0
ORDER COLEOPTERA                         .0      .0      .0      .0      .0          .0
ORDER TRICHOPTERA                        .0      .0      .0      .0      .0          .0
FAMILY CHIRONOMIDAE                      .0    11.1    22.2    11.1    11.1         5.0
PHYLUM MOLLUSCA                          .0      .0      .0      .0      .0          .0


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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.382
VARIANCE      -  .0054
MAXIMUM INDEX - 2.197
EVENNESS      -  .629
NO OF SPECIES -     9

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SEPTEMBER (9/29/80)

BENTHOS (MACROINVERTEBRATES) DENSITY AND SPECIES DIVERSITY CALCULATIONS

CATHEDRAL BLUFFS SHALE OIL COMPANY

STATION NUMBER - 1
STATION LOCATION - STEWART STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 092980
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY NAIDIDAE						
NAIS SP.	11.1	.0	.0	3.7	6.4	.4
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS LEACH	666.7	555.6	488.9	570.4	89.8	54.8
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	33.3	11.1	11.1	18.5	12.8	1.8
ORDER PLECOPTERA						
FAMILY PERLODIDAE						
ISOPERLA BANKS	44.4	55.6	44.4	48.1	6.4	4.6
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	.0	.0	11.1	3.7	6.4	.4
ORDER TRICHOPTERA						
FAMILY HYDROPSYCHIDAE						
HYDROPSYCHE PICTET	200.0	366.7	266.7	277.8	83.9	26.7
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY ORTHOCLADIINAE						
TRIBES ORTHOCLADIINI AND METRIOCNE						
EUKIEFFERIELLA THIENEMANN	11.1	33.3	33.3	25.9	12.8	2.5
ORTHOCLADIUS VAN DER WULP	33.3	.0	.0	11.1	19.2	1.1
FAMILY MUSCIDAE						
LIMNOPHORA ROBINEAU-DESVOIDY	.0	.0	11.1	3.7	6.4	.4
FAMILY TIPULIDAE						
HEXATOMA LATREILLE	100.0	77.8	44.4	74.1	28.0	7.1
FAMILY STRATIOMYIDAE						
EUPARYPHUS	.0	.0	11.1	3.7	6.4	.4
TOTAL	1100.0	1100.0	922.2	1040.7	102.6	100.0

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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                         .0       .0       .0      .0      .0           .0
CLASS OLIGOCHAETA                     11.1       .0       .0     3.7     6.4           .4
ORDER EPHEMEROPTERA                  700.0    566.7    500.0   588.9   101.8         56.6
ORDER ODONATA                           .0       .0       .0      .0      .0           .0
ORDER PLECOPTERA                      44.4     55.6     44.4    48.1     6.4          4.6
ORDER COLEOPTERA                        .0       .0     11.1     3.7     6.4           .4


ORDER TRICHOPTERA                    200.0    366.7    266.7   277.8    83.9         26.7
FAMILY CHIRONOMIDAE                   44.4     33.3     33.3    37.0     6.4          3.6
PHYLUM MOLLUSCA                         .0       .0       .0      .0      .0           .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.305
VARIANCE      -  .0C11
MAXIMUM INDEX - 2.398
EVENNESS      -  .544
NO OF SPECIES -    11

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STATION NUMBER - 2
STATION LOCATION - MIDDLE STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 092980
SIZE OF SAMPLER -    .09 M2

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                                                        DENSITY(#/M2)                             PERCENT
 TAXON                                          REP 1      REP 2      REP 3     MEAN      S.D.   RELATIVE ABUNDANCE
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PHYLUM ANNELIDA
 CLASS OLIGOCHAETA
  ORDER HAPLOTAXIDA
    FAMILY TUBIFICIDAE
       TUBIFEX TUBIFEX                         1088.9      533.3      255.6     625.9     424.3         85.4
PHYLUM ARTHROPODA
 CLASS INSECTA
  ORDER EPHEMEROPTERA
    FAMILY EPHEMERELLIDAE
       EPHEMERELLA INERMIS   EATON               11.1         .0         .0       3.7       6.4           .5
    FAMILY TRICORYTHIDAE
       TRICORYTHODES   ULMER                     11.1         .0         .0       3.7       6.4           .5
  ORDER COLEOPTERA
    FAMILY ELMIDAE
       OPTIOSERVUS                               88.9       22.2       11.1      40.7      42.1          5.6
  ORDER TRICHOPTERA
    FAMILY HYDROPSYCHIDAE
       HYDROPSYCHE   PICTET                      33.3         .0         .0      11.1      19.2          1.5
  ORDER DIPTERA
    FAMILY CHIRONOMIDAE
     SUBFAMILY ORTHOCLADIINAE
      TRIBES ORTHOCLADIINI AND METRIOCNE
       ORTHOCLADIUS  VAN DER WULP                11.1         .0         .0       3.7       6.4           .5
     SUBFAMILY CHIRONOMINAE
      TRIBE CHIRONOMINI
       TRIBELOS                                  44.4       22.2       22.2      29.6      12.8          4.0
    FAMILY SIMULIIDAE
       SIMULIUM ARCTICUM  MALLOCH (PUPAE         33.3         .0         .0      11.1      19.2          1.5
    FAMILY MUSCIDAE
       LIMNOPHORA   ROBINEAU-DESVOIDY              .0       11.1         .0       3.7       6.4           .5

  TOTAL                                        1322.2      588.9      288.9     733.3     531.6        100.0
 -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -
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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                        .0       .0       .0      .0      .0            .0
CLASS OLIGOCHAETA                  1088.9    533.3    255.6   625.9   424.3          85.4
ORDER EPHEMEROPTERA                  22.2       .0       .0     7.4    12.8           1.0
ORDER ODONATA                          .0       .0       .0      .0      .0            .0
ORDER PLECOPTERA                       .0       .0       .0      .0      .0            .0
ORDER COLEOPTERA                     88.9     22.2     11.1    40.7    42.1           5.6
ORDER TRICHOPTERA                    33.3       .0       .0    11.1    19.2           1.5
FAMILY CHIRONOMIDAE                  55.6     22.2     22.2    33.3    19.2           4.5
PHYLUM MOLLUSCA                        .0       .0       .0      .0      .0            .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX -   .659
VARIANCE      -   .0021
MAXIMUM INDEX - 2.197
EVENNESS      -   .300
NO OF SPECIES -     9

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STATION NUMBER - 3
STATION LOCATION - HUNTER STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 092980
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
LIMNODRILUS HOFFMEISTERI	455.6	166.7	255.6	292.6	148.0	46.5
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS LEACH	277.8	177.8	166.7	207.4	61.2	32.9
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	44.4	122.2	88.9	85.2	39.0	13.5
ORDER PLECOPTERA						
FAMILY PERLODIDAE						
ISOPERLA BANKS	.0	11.1	11.1	7.4	6.4	1.2
ORDER TRICHOPTERA						
FAMILY HYDROPSYCHIDAE						
HYDROPSYCHE PICTET	22.2	33.3	.0	18.5	17.0	2.9
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY CHIRONOMINAE						
TRIBE TANYTARSINI						
CHIRONOMIDAE PUPAE	11.1	11.1	.0	7.4	6.4	1.2
FAMILY TIPULIDAE						
HEXATOMA LATREILLE	11.1	11.1	11.1	11.1	.0	1.8
TOTAL	822.2	533.3	533.3	629.6	166.8	100.0

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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                       .0      .0      .0      .0      .0         .0
CLASS OLIGOCHAETA                  455.6   166.7   255.6   292.6   148.0       46.5
ORDER EPHEMEROPTERA                322.2   300.0   255.6   292.6    33.9       46.5
ORDER ODONATA                         .0      .0      .0      .0      .0         .0
ORDER PLECOPTERA                      .0    11.1    11.1     7.4     6.4        1.2
ORDER COLEOPTERA                      .0      .0      .0      .0      .0         .0
ORDER TRICHOPTERA                   22.2    33.3      .0    18.5    17.0        2.9
FAMILY CHIRONOMIDAE                 11.1    11.1      .0     7.4     6.4        1.2
PHYLUM MOLLUSCA                       .0      .0      .0      .0      .0         .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.272
VARIANCE      -  .0011
MAXIMUM INDEX - 1.946
EVENNESS      -  .654
NO OF SPECIES -     7

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OCTOBER

BENTHOS (MACROINVERTEBRATES) DENSITY AND SPECIES DIVERSITY CALCULATIONS

CATHEDRAL BLUFFS SHALE OIL COMPANY

STATION NUMBER - 1
STATION LOCATION - STEWART STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 102980
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY NAIDIDAE						
NAIS SP.	11.1	.0	.0	3.7	6.4	.6
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS LEACH	100.0	122.2	44.4	88.9	40.1	15.1
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	33.3	66.7	.0	33.3	33.3	5.7
ORDER PLECOPTERA						
FAMILY CHLOROPERLIDAE	.0	122.2	11.1	44.4	67.6	7.5
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	22.2	22.2	.0	14.8	12.8	2.5
ORDER TRICHOPTERA						
FAMILY HYDROPSYCHIDAE						
HYDROPSYCHE PICTET	88.9	477.8	177.8	248.1	203.8	42.1
FAMILY LIMNEPHILIDAE						
HESPEROPHYLAX BANKS	11.1	11.1	11.1	11.1	.0	1.9
FAMILY GLOSSOSOMATIDAE						
GLOSSOSOMA CURTIS	22.2	11.1	33.3	22.2	11.1	3.8
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY ORTHOCLADIINAE						
ORTHOCLADINAE A	11.1	44.4	33.3	29.6	17.0	5.0
TRIBES ORTHOCLADIINI AND METRIOCNE						
EUKIEFFERIELLA THIENEMANN	11.1	22.2	44.4	25.9	17.0	4.4
SUBFAMILY CHIRONOMINAE						
TRIBE TANYTARSINI						
CHIRONOMIDAE PUPAE	.0	22.2	11.1	11.1	11.1	1.9
FAMILY MUSCIDAE						
LIMNOPHORA ROBINEAU-DESVOIDY	.0	11.1	.0	3.7	6.4	.6
FAMILY TABANIDAE						
CHRYSOPS MEIGEN	11.1	.0	.0	3.7	6.4	.6
FAMILY TIPULIDAE						
HEXATOMA LATRETILLE	22.2	33.3	77.8	44.4	29.4	7.5
TIPULA LINNAEUS	.0	11.1	.0	3.7	6.4	.6
TOTAL	344.4	[illegible]7.8	444.4	588.9	340.5	100.0

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SUMMARY - MAJOR BENTHOS TAXA


PHYLUM NEMATODA                          .0      .0      .0      .0      .0          .0
CLASS OLIGOCHAETA                      11.1      .0      .0     3.7     6.4          .6
ORDER EPHEMEROPTERA                   133.3   188.9    44.4   122.2    72.9        20.8
ORDER ODONATA                            .0      .0      .0      .0      .0          .0
ORDER PLECOPTERA                         .0   122.2    11.1    44.4    67.6         7.5
ORDER COLEOPTERA                       22.2    22.2      .0    14.8    12.8         2.5
ORDER TRICHOPTERA                     122.2   500.0   222.2   281.5   195.7        47.8
FAMILY CHIRONOMIDAE                    22.2    88.9    88.9    66.7    38.5        11.3
PHYLUM MOLLUSCA                          .0      .0      .0      .0      .0          .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.984
VARIANCE      -  .0021
MAXIMUM INDEX - 2.708
EVENNESS      -  .733
NO OF SPECIES -    15

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STATION NUMBER - 2
STATION LOCATION - MIDDLE STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 102980
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	155.6	255.6	177.8	196.3	52.5	14.5
FAMILY LUMBRICULIDAE						
EISENELLA TETRAEDRA	11.1	22.2	.0	11.1	11.1	.8
FAMILY NAIDIDAE						
NAIS SP.	422.2	211.1	122.2	251.9	154.1	18.6
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS LEACH	122.2	44.4	55.6	74.1	42.1	5.5
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	.0	11.1	.0	3.7	6.4	.3
ORDER PLECOPTERA						
FAMILY CHLOROPERLIDAE	66.7	33.3	.0	33.3	33.3	2.5
ORDER COLEOPTERA						
FAMILY ELMIDAE						
OPTIOSERVUS	44.4	22.2	.0	22.2	22.2	1.6
FAMILY HALIPLIDAE						
BRYCHIUS THOMSON	11.1	11.1	11.1	11.1	.0	.8
ORDER TRICHOPTERA						
FAMILY LIMNEPHILIDAE						
HESPEROPHYLAX BANKS	11.1	11.1	11.1	11.1	.0	.8
ORDER DIPTERA						

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    FAMILY CHIRONOMIDAE
      SUBFAMILY ORTHOCLADIINAE
        TRIBES ORTHOCLADIINI AND METRIOCNE
          CRICOTOPUS     VAN DER WULP            122.2      88.9        .0     70.4     63.2          5.2
          EUKIEFFERIELLA   THIENEMANN            188.9     300.0        .0    163.0    151.7         12.1
          ORTHOCLADIUS  VAN DER WULP             377.8     511.1        .0    296.3    265.1         21.9
      SUBFAMILY CHIRONOMINAE
        TRIBE CHIRONOMINI
          TRIBELOS                                22.2      44.4        .0     22.2     22.2          1.6
        TRIBE TANYTARSINI
          CHIRONOMIDAE PUPAE                        .0     188.9     144.4    111.1     98.8          8.2
    FAMILY SIMULIDAE
          SIMULIUM LARVAE                         11.1      22.2      22.2     18.5      6.4          1.4
    FAMILY MUSCIDAE
          LIMNOPHORA   ROBINEAU-DESVOIDY          33.3        .0        .0     11.1     19.2           .8
    FAMILY TIPULIDAE
          HEXATOMA   LATREILLE                    22.2      11.1      22.2     18.5      6.4          1.4
          TIPULA   LINNAEUS                       22.2      33.3        .0     18.5     17.0          1.4
    FAMILY STRATIOMYIDAE
          EUPARYPHUS                              11.1        .0        .0      3.7      6.4           .3
PHYLUM MOLLUSCA
  CLASS GASTROPODA
    FAMILY PHYSIDAE
          PHYSA SP.                                 .0        .0      11.1      3.7      6.4           .3

  TOTAL                                         1655.6    1822.2     577.8   1351.9    675.5        100.0
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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                                    .0        .0        .0       .0       .0           .0
CLASS OLIGOCHAETA                                588.9     488.9     300.0    459.3    146.7         34.0
ORDER EPHEMEROPTERA                              122.2      55.6      55.6     77.8     38.5          5.8
ORDER ODONATA                                      .0        .0        .0       .0       .0           .0
ORDER PLECOPTERA                                  66.7      33.3        .0     33.3     33.3          2.5
ORDER COLEOPTERA                                  55.6      33.3      11.1     33.3     22.2          2.5
ORDER TRICHOPTERA                                 11.1      11.1      11.1     11.1       .0           .8
FAMILY CHIRONOMIDAE                              711.1    1133.3     144.4    663.0    496.2         49.0
PHYLUM MOLLUSCA                                    .0        .0      11.1      3.7      6.4           .3


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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 2.368
VARIANCE      -  .0007
MAXIMUM INDEX - 2.996
EVENNESS      -  .771
NO OF SPECIES -    20

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STATION NUMBER - 3
STATION LOCATION - HUNTER STATION
NUMBER OF REPLICATES - 3
SAMPLE DATE - 102980
SIZE OF SAMPLER - .09 M2

TAXON	DENSITY(#/M2) REP 1	REP 2	REP 3	MEAN	S.D.	PERCENT RELATIVE ABUNDANCE
PHYLUM ANNELIDA						
CLASS OLIGOCHAETA						
ORDER HAPLOTAXIDA						
FAMILY TUBIFICIDAE						
TUBIFEX TUBIFEX	.0	.0	122.2	40.7	70.6	9.5
FAMILY NAIDIDAE						
NAIS SP.	88.9	133.3	77.8	100.0	29.4	23.3
PHYLUM ARTHROPODA						
CLASS INSECTA						
ORDER EPHEMEROPTERA						
FAMILY BAETIDAE						
BAETIS LEACH	11.1	.0	.0	3.7	6.4	.9
FAMILY EPHEMERELLIDAE						
EPHEMERELLA INERMIS EATON	22.2	.0	11.1	11.1	11.1	2.6
ORDER PLECOPTERA						
FAMILY CHLOROPERLIDAE	11.1	.0	.0	3.7	6.4	.9
ORDER DIPTERA						
FAMILY CHIRONOMIDAE						
SUBFAMILY ORTHOCLADIINAE						
TRIBES ORTHOCLADIINI AND METRIOCNE						
EUKIEFFERIELLA THIENEMANN	33.3	.0	88.9	40.7	44.9	9.5
ORTHOCLADIUS VAN DER WULP	122.2	44.4	344.4	170.4	155.7	39.7
SUBFAMILY CHIRONOMINAE						
TRIBE TANYTARSINI						
CHIRONOMIDAE PUPAE	77.8	.0	88.9	55.6	48.4	12.9
FAMILY TIPULIDAE						
HEXATOMA LATREILLE	.0	.0	11.1	3.7	6.4	.9
TOTAL	366.7	177.8	744.4	429.6	288.5	100.0

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SUMMARY - MAJOR BENTHOS TAXA

PHYLUM NEMATODA                      .0      .0      .0      .0      .0           .0
CLASS OLIGOCHAETA                  88.9   133.3   200.0   140.7    55.9         32.8
ORDER EPHEMEROPTERA                33.3      .0    11.1    14.8    17.0          3.4
ORDER ODONATA                        .0      .0      .0      .0      .0          .0
ORDER PLECOPTERA                   11.1      .0      .0     3.7     6.4          .9
ORDER COLEOPTERA                     .0      .0      .0      .0      .0          .0
ORDER TRICHOPTERA                    .0      .0      .0      .0      .0          .0
FAMILY CHIRONOMIDAE               233.3    44.4   522.2   266.7   240.6         62.1
PHYLUM MOLLUSCA                      .0      .0      .0      .0      .0          .0

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX - 1.635
VARIANCE      -  .0016
MAXIMUM INDEX - 2.197
EVENNESS      -  .744
NO OF SPECIES -     9

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PERIPHYTON BIOMASS (ANALYZED DATA)

- Station 1 = Stewart Station (WP01)
- Station 2 = Middle Station (WP02)
- Station 3 = Hunter Station (WP03)

- June
- August (old)
- August (new)
- September (9/02/80)
- September (old)
- September (new)
- October (old)
- October (new)

JUNE

PERIPHYTON BIOMASS ANALYSIS
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 062780
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)	BIOMASS (MG/CM2)	STATION AVERAGE (MG/CM2)
1A	.4430	.1007	9.128	
1B	.3733	.1715	5.381	
1C	.5130	.1780	8.933	7.814
2A	.1980	.1524	1.216	
2B	.1524	.1036	1.301	
2C	.1386	.0901	1.293	1.270
3A	.3347	.0970	6.339	
3B	.4343	.0676	9.779	
3C	.5193	.1155	10.768	8.962

AUGUST (old)

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                PERIPHYTON BIOMASS ANALYSIS
              CATHEDRAL BLUFFS SHALE OIL COMPANY
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SAMPLE COLLECTION DATE - 080180
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

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STATION-REP.    DRY WEIGHT (GM)    ASH WEIGHT (GM)    BIOMASS (MG/CM2)    STATION AVERAGE (MG/CM2)

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    1A              .4690              .4349              .909
    1B              .4941              .4670              .723
    1C              .4671              .4388              .755                .796
    2A              .5161              .4819              .912
    2B              .4456              .4173              .755
    2C              .4733              .4417              .843                .837
    3A              .1358              .0926             1.152
    3B              .0532              .0368              .437
    3C              .0745              .0581              .437                .675

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AUGUST (new)

PERIPHYTON BIOMASS ANALYSIS
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 080180
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)	BIOMASS (MG/CM2)	STATION AVERAGE (MG/CM2)
1A	.3652	.3499	.408	
1B	.4519	.4081	1.168	
1C	.4129	.3767	.965	.847
2A	.5288	.4737	1.469	
2B	.5304	.4716	1.568	
2C	.6067	.5474	1.581	1.539
3A	.4232	.3890	.912	
3B	.3391	.3052	.904	
3C	.3539	.3252	.765	.860

SEPTEMBER (9/02/80)

PERIPHYTON BIOMASS ANALYSIS
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 090280
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)	BIOMASS (MG/CM2)	STATION AVERAGE (MG/CM2)
1A	.0880	.0758	.325	
1B	.1526	.1290	.629	
1C	.0606	.0506	.267	.407
2A	.1045	.0870	.467	
2B	.0956	.0791	.440	
2C	.1013	.0867	.389	.432
3A	.1960	.1697	.701	
3B	.1505	.1305	.533	
3C	.1503	.1323	.480	.571

SEPTEMBER (old)

PERIPHYTON BIOMASS ANALYSIS
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 092980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)	BIOMASS (MG/CM2)	STATION AVERAGE (MG/CM2)
1B	.0340	.0295	.120	
1C	.0344	.0307	.099	.110
2A	.2972	.2763	.557	
2B	.1197	.1024	.461	
2C	.2671	.2501	.453	.490
3A	.0933	.0890	.115	
3B	.1026	.0884	.379	
3C	.0901	.0856	.120	.205

SEPTEMBER (new)

PERIPHYTON BIOMASS ANALYSIS
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 092980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)	BIOMASS (MG/CM2)	STATION AVERAGE (MG/CM2)
1A	.0177	.0160	.045	
1B	.0232	.0142	.240	
1C	.0320	.0230	.240	.175
2A	.0879	.0731	.395	
2B	.0745	.0613	.352	
2C	.0736	.0585	.403	.383
3A	.0201	.0187	.037	
3B	.0224	.0214	.027	
3C	.0208	.0194	.037	.034

OCTOBER (old)

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              PERIPHYTON BIOMASS ANALYSIS
            CATHEDRAL BLUFFS SHALE OIL COMPANY
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SAMPLE COLLECTION DATE - 102980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

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STATION-REP     DRY WEIGHT (GM)     ASH WEIGHT (GM)     BIOMASS (MG/CM2)     STATION AVERAGE (MG/CM2)

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    1A              .0679                .0590                .237
    1B              .0911                .0819                .245
    1C              .1084                .0930                .411                   .298
    2A              .5284                .4970                .837
    2B              .4521                .4252                .717
    2C              .4004                .3770                .624                   .726
    3A              .2383                .2230                .408
    3B              .2499                .2314                .493
    3C              .1540                .1406                .357                   .419

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OCTOBER (new)

PERIPHYTON BIOMASS ANALYSIS
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 102980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)	BIOMASS (MG/CM2)	STATION AVERAGE (MG/CM2)
1A	.1268	.1075	.515	
1B	.0966	.0848	.315	
1C	.1160	.0988	.459	.430
2A	.5119	.4703	1.109	
2B	.5703	.5231	1.259	
2C	.5811	.5341	1.253	1.207
3A	.1946	.1726	.587	
3B	.1843	.1630	.568	
3C	.3853	.3474	1.011	.722

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PERIPHYTON ANALYSIS

- Station 1 = Stewart Station (WP01)
- Station 2 = Middle Station (WP02)
- Station 3 = Hunter Station (WP03)

- June
- August (old)
- August (new)
- September (9/02/80)
- September (9/29/80)
- October

JUNE

PERIPHYTON DENSITY AND SPECIES DIVERSITY ESTIMATES

CATHEDRAL BLUFFS SHALE OIL COMPANY
TRACT C-B

SAMPLE DATE: 062780

STATION: 1 - STEWART STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-HLD

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES AFFINIS	104.43	.00	.00	34.81	60.29	.29
ACHNANTHES LANCEOLATA	.00	468.08	.00	156.03	270.24	1.31
ACHNANTHES LANCEOLATA VAR. DUBIA	.00	.00	90.56	30.19	52.29	.25
ACHNANTHES MINUTISSIMA	31.33	200.60	77.63	103.19	87.48	.87
AMPHORA PERPUSILLA	.00	.00	90.56	30.19	52.29	.25
AMPHORA VENETA	3.48	.00	.00	1.16	2.01	.01
COCCONEIS PEDICULUS	.00	133.74	.00	44.58	77.21	.37
CYMBELLA MINUTA	.00	66.87	.00	22.29	38.61	.19
FRAGILARIA CROTONENSIS	.00	668.68	.00	222.89	386.06	1.87
FRAGILARIA VAUCHERIAE	121.84	200.60	77.63	133.36	62.29	1.12
GOMPHONEMA OLIVACEUM	.00	668.68	517.51	395.40	350.67	3.32
MERIDION CIRCULARE	.00	133.74	.00	44.58	77.21	.37
NAVICULA ARVENSIS	.00	.00	116.44	38.81	67.23	.33
NAVICULA CRYPTOCEPHALA	.00	66.87	12.94	26.60	35.47	.22
NAVICULA CRYPTOCEPHALA VAR. VENETA	.00	66.87	12.94	26.60	35.47	.22
NAVICULA HEUFLERI	3.48	334.34	168.19	168.67	165.43	1.41
NAVICULA MENISCULUS VAR. UPSALIENSIS	.00	601.81	.00	200.60	347.46	1.69
NAVICULA MINIMA	.00	401.21	38.81	146.67	221.29	1.23
NAVICULA PELLICULOSA	17.41	.00	90.56	35.99	48.06	.30
NAVICULA PYGMAEA	.00	.00	12.94	4.31	7.47	.04
NAVICULA SECRETA VAR. APICULATA	27.85	1471.09	478.69	659.21	738.36	5.53
NAVICULA SIMPLEX	3.48	.00	.00	1.16	2.01	.01
NAVICULA VIRIDULA	362.03	13373.58	1940.65	5225.42	7100.52	43.84
NAVICULA SP.	.00	66.87	.00	22.29	38.61	.19
NITZSCHIA ACICULARIS	3.48	334.34	232.88	190.23	164.50	1.60
NITZSCHIA DISSIPATA	13.92	133.74	194.07	113.91	91.69	.96
NITZSCHIA FONTICOLA	45.25	1471.09	1035.01	850.45	730.62	7.13
NITZSCHIA HOLSATICA	62.66	.00	.00	20.89	36.18	.18
NITZSCHIA HUNGARICA	.00	601.81	103.50	235.10	321.27	1.97
NITZSCHIA LINEARIS	3.48	1404.23	168.19	525.30	765.62	4.41
NITZSCHIA PALEA	217.41	1605.43	737.45	853.43	849.64	7.18
NITZSCHIA TRYBLIONELLA VAR. LEVIDENS	.00	200.60	.00	66.87	115.82	.56
PINNULARIA SP.	3.48	.00	.00	1.16	2.01	.01
SURIRELLA ANGUSTATA	.00	66.87	.00	22.29	38.61	.19
SURIRELLA OVALIS	.00	133.74	.00	44.58	77.21	.37
SURIRELLA OVATA	20.89	3142.79	155.25	1106.31	1764.92	9.28
SYNEDRA FASCICULATA	6.96	.00	.00	2.32	4.02	.02
SYNEDRA MINUSCULA	59.18	133.74	.00	64.30	67.02	.54
SYNEDRA ULNA	.00	.00	12.94	4.31	7.47	.04
DIVISION TOTAL	912.03	28352.00	6365.33	11876.45	14526.44	99.63

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CHLOROPHYTA

  CLOSTERIUM SP.                                  .00        5.33         .00        1.78        3.06           .01
  MICROSPORA SP.                                  .00       10.67         .00        3.56        6.16           .03
  PALMELLA STAGE OF CHAETOPHORACEAE             78.51         .00       13.33       30.61       42.01           .26
                                             --------    --------    --------    --------    --------        ------
DIVISION TOTAL                                  78.51       16.00       13.33       35.95       36.88           .30


CHRYSOPHYTA


CYANOPHYTA

  ANABAENA SP.                                    .00         .00        2.67         .89        1.54           .01
  OSCILLATORIA SP.                                .00         .00        5.33        1.76        3.08           .01
  PHORMIDIUM SP.                                 8.59        5.33        2.67        5.53        2.96           .05
                                             --------    --------    --------    --------    --------        ------
DIVISION TOTAL                                   8.59        5.33       10.67        8.20        2.69           .07


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TOTAL DENSITY                                  999.12    28373.33     6389.33    11920.60    14501.14        100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 2.275
VARIANCE      =  .0002
MAXIMUM INDEX = 3.807
EVENNESS      =  .598
NO OF SPECIES =    45

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STATION: 2 - MIDDLE STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-PED

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	.00	30.35	.00	10.12	17.52	.21
ACHNANTHES LANCEOLATA VAR. DUBIA	52.18	40.47	67.28	53.31	13.44	1.12
ACHNANTHES MINUTISSIMA	177.40	60.71	20.18	86.10	81.63	1.81
AMPHORA PERPUSILLA	.00	40.47	.00	13.49	23.37	.28
CALONEIS SMITHII	.00	.00	6.73	2.24	3.88	.05
CALONEIS VENTRICOSA	20.87	.00	.00	6.96	12.05	.15
CYCLOTELLA MENEGHINIANA	166.96	40.47	26.91	78.11	77.24	1.64
CYMBELLA MINUTA	.00	10.12	.00	3.37	5.84	.07
CYMBELLA MINUTA VAR. SILESIACA	.00	10.12	.00	3.37	5.84	.07
FRAGILARIA CROTONENSIS	.00	50.59	.00	16.86	29.21	.35
FRAGILARIA LEPTOSTAURON	.00	20.24	.00	6.75	11.68	.14
FRAGILARIA VAUCHERIAE	146.09	50.59	67.28	87.99	51.01	1.85
GOMPHONEMA ANGUSTATUM	62.61	30.35	47.09	46.69	16.13	.98
GOMPHONEMA OLIVACEUM	.00	141.65	40.37	60.67	72.97	1.27
GOMPHONEMA PARVULUM	20.87	60.71	.00	27.19	30.84	.57
NAVICULA CINCTA	.00	.00	6.73	2.24	3.88	.05
NAVICULA CRYPTOCEPHALA	31.31	.00	6.73	12.68	16.48	.27
NAVICULA CRYPTOCEPHALA VAR. VENETA	83.48	252.94	222.01	186.14	90.24	3.91
NAVICULA HALOPHILA	20.87	.00	.00	6.96	12.05	.15
NAVICULA HEUFLERI	20.87	50.59	6.73	26.06	22.39	.55
NAVICULA MINIMA	52.18	60.71	.00	37.63	32.86	.79
NAVICULA MUTICA VAR. UNDULATA	.00	.00	6.73	2.24	3.88	.05
NAVICULA PELLICULOSA	10.44	.00	6.73	5.72	5.29	.12
NAVICULA PYGMAEA	.00	10.12	.00	3.37	5.84	.07
NAVICULA SALINARUM VAR. INTERMEDIA	.00	.00	6.73	2.24	3.88	.05
NAVICULA SECRETA VAR. APICULATA	532.20	344.06	228.74	368.31	153.18	7.74
NAVICULA TRIPUNCTATA VAR. SCHIZONEMOI	41.74	40.47	67.28	49.83	15.12	1.05
NAVICULA VIRIDULA	177.40	91.06	60.55	109.67	60.61	2.30
NITZSCHIA ACICULARIS	813.95	657.65	80.73	517.44	386.19	10.87
NITZSCHIA APICULATA	10.44	.00	.00	3.48	6.02	.07
NITZSCHIA DISSIPATA	166.96	30.35	67.28	88.20	70.67	1.85
NITZSCHIA FONTICOLA	177.40	121.41	181.64	160.15	33.62	3.37
NITZSCHIA FRUSTULUM	83.48	.00	.00	27.83	48.20	.58
NITZSCHIA HOLSATICA	1784.42	1315.29	592.02	1230.58	600.70	25.86
NITZSCHIA HUNGARICA	41.74	80.94	67.28	63.32	19.90	1.33
NITZSCHIA LINEARIS	104.35	172.00	195.10	157.15	47.16	3.30
NITZSCHIA PALEA	459.15	354.12	672.75	495.34	162.37	10.41
NITZSCHIA SIGMOIDEA	10.44	.00	201.83	70.75	113.63	1.49
NITZSCHIA TRYBLIONELLA VAR. LEVIDENS	10.44	20.24	.00	10.22	10.12	.21
STAURONEIS SMITHII	.00	.00	13.46	4.49	7.77	.09
SURIRELLA ANGUSTATA	20.87	.00	6.73	9.20	10.65	.19
SURIRELLA OVALIS	.00	121.41	.00	40.47	70.10	.85
SURIRELLA OVATA	135.66	131.53	242.19	169.79	62.73	3.57
SYNEDRA ACUS	.00	20.24	6.73	8.99	10.31	.19
SYNEDRA FASCICULATA	20.87	10.12	6.73	12.57	7.38	.26
SYNEDRA MINUSCULA	62.61	.00	.00	20.87	36.15	.44
SYNEDRA ULNA	10.44	.00	13.46	7.96	7.06	.17
DIVISION TOTAL	5530.67	4472.00	3242.67	4415.11	1145.06	92.77

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CHLOROPHYTA

  PALMELLA STAGE OF CHAETOPHORACEAE       261.33      74.67     448.00     261.33     186.67        5.49
  ULOTHRIX ZONATA                          77.33      42.67       2.67      40.89      37.37         .86
                                        --------   --------   --------   --------   --------      ------
DIVISION TOTAL                            338.67     117.33     450.67     302.22     169.63        6.35


CHRYSOPHYTA


CYANOPHYTA

  ANABAENA SP.                              5.33        .00        .00       1.78       3.08         .04
  OSCILLATORIA SP.                          2.67        .00        .00        .89       1.54         .02
  PHORMIDIUM SP.                          104.00      13.33        .00      39.11      56.59         .62

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DIVISION TOTAL                            112.00      13.33        .00      41.78      61.18         .88

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TOTAL DENSITY                            5981.33    4602.67    3693.33    4759.11    1151.99      100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 2.833
VARIANCE      =  .0003
MAXIMUM INDEX = 3.951
EVENNESS      =  .717
NO OF SPECIES =    52

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STATION: 3 - HUNTER STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-FED

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA VAR. DUBIA	.00	7.61	.00	2.54	4.39	.07
ACHNANTHES MINUTISSIMA	18.06	.00	75.43	31.16	39.35	.83
AMPHORA PERPUSILLA	.00	.00	10.78	3.59	6.22	.10
COCCONEIS PEDICULUS	6.02	.00	.00	2.01	3.48	.05
CYCLOTELLA MENEGHINIANA	.00	7.61	32.33	13.31	16.90	.36
FRAGILARIA VAUCHERIAE	.00	.00	43.11	14.37	24.89	.38
GOMPHONEMA ANGUSTATUM	.00	.00	10.78	3.59	6.22	.10
GOMPHONEMA OLIVACEUM	30.10	7.61	.00	12.57	15.65	.34
NAVICULA ARVENSIS	.00	15.22	.00	5.07	8.79	.14
NAVICULA CINCTA	6.02	7.61	.00	4.54	4.01	.12
NAVICULA CRYPTOCEPHALA	.00	.00	10.78	3.59	6.22	.10
NAVICULA CRYPTOCEPHALA VAR. VENETA	6.02	.00	10.78	5.60	5.40	.15
NAVICULA MUELLERI	.00	.00	10.78	3.59	6.22	.10
NAVICULA MINIMA	6.02	7.61	32.33	15.32	14.75	.41
NAVICULA SALINARUM VAR. INTERMEDIA	6.02	.00	21.55	9.19	11.12	.25
NAVICULA SECRETA VAR. APICULATA	234.76	121.76	183.20	179.91	56.57	4.81
NAVICULA TRIPUNCTATA VAR. SCHIZONEMO	.00	.00	10.78	3.59	6.22	.10
NAVICULA VIRIDULA	2377.72	2891.75	1260.84	2176.77	833.82	58.24
NITZSCHIA ACICULARIS	66.21	53.27	10.78	43.42	29.00	1.16
NITZSCHIA DISSIPATA	24.08	.00	.00	8.03	13.90	.21
NITZSCHIA FONTICOLA	36.12	7.61	32.33	25.35	15.48	.68
NITZSCHIA HOLSATICA	349.13	509.86	571.15	476.71	114.66	12.75
NITZSCHIA HUNGARICA	6.02	7.61	.00	4.54	4.01	.12
NITZSCHIA LINEARIS	12.04	30.44	64.66	35.71	26.70	.96
NITZSCHIA PALEA	439.43	289.18	495.71	408.11	106.77	10.92
SURIRELLA ANGUSTATA	6.02	.00	32.33	12.78	17.19	.34
SURIRELLA OVALIS	.00	7.61	.00	2.54	4.39	.07
SURIRELLA OVATA	60.20	106.54	377.17	181.30	171.20	4.85
SYNEDRA MINUSCULA	6.02	30.44	107.76	48.07	53.12	1.29
DIVISION TOTAL	3696.00	4109.33	3405.33	3736.89	353.78	99.98

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CHLOROPHYTA


CHRYSOPHYTA


CYANOPHYTA

  ANABAENA SP.                        2.67       .00       .00       .89      1.54        .02
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DIVISION TOTAL                        2.67       .00       .00       .89      1.54        .02


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TOTAL DENSITY                      3698.67   4109.33   3405.33   3737.78    353.63     100.00

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX  =  1.553
VARIANCE       =   .0006
MAXIMUM INDEX  =  3.401
EVENNESS       =   .457
NO OF SPECIES  =     20

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AUGUST (old)

PERIPHYTON DENSITY AND SPECIES DIVERSITY ESTIMATES

CATHEDRAL BLUFFS SHALE OIL COMPANY
TRACT C-B

SAMPLE DATE: 080180

STATION: 1 - STEWART STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-OLD

	DENSITY (UNITS/MM2)					
TAXON	REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES AFFINIS	.00	.00	120.15	40.05	69.37	.33
ACHNANTHES LANCEOLATA	170.19	331.94	180.23	227.46	90.63	1.87
ACHNANTHES LANCEOLATA VAR. DUBIA	.00	.00	160.20	53.40	92.49	.44
ACHNANTHES MICROCEPHALA	34.04	.00	.00	11.35	19.65	.09
ACHNANTHES MINUTISSIMA	782.89	110.65	1361.72	751.75	626.12	6.17
AMPHORA OVALIS	.00	.00	40.05	13.35	23.12	.11
AMPHORA PERPUSILLA	.00	.00	20.03	6.68	11.56	.05
AMPHORA VENETA	68.08	.00	20.03	29.37	34.99	.24
COCCONEIS PLACENTULA	.00	36.88	60.08	32.32	30.30	.27
CYCLOTELLA MENEGHINIANA	170.19	36.88	20.03	75.70	82.27	.62
CYMBELLA MINUTA	.00	36.88	.00	12.29	21.29	.10
CYMBELLA MINUTA VAR. SILESIACA	34.04	147.53	.00	60.52	77.25	.50
CYMBELLA SINUATA	.00	.00	60.08	20.03	34.68	.16
DIATOMA HIEMALE VAR. MESODON	.00	36.88	.00	12.29	21.29	.10
DIATOMA TENUE VAR. ELONGATUM	.00	36.88	.00	12.29	21.29	.10
DIATOMA VULGARE	34.04	147.53	.00	60.52	77.25	.50
FRAGILARIA CAPUCINA	.00	36.88	.00	12.29	21.29	.10
FRAGILARIA VAUCHERIAE	68.08	627.00	.00	231.69	344.04	1.90
GOMPHONEMA ACUMINATUM	.00	.00	20.03	6.68	11.56	.05
GOMPHONEMA ANGUSTATUM	68.08	.00	40.05	36.04	34.22	.30
GOMPHONEMA INTRICATUM	34.04	36.88	.00	23.64	20.52	.19
GOMPHONEMA OLIVACEUM	204.23	295.06	240.30	246.53	45.73	2.02
GYROSIGMA SPENCERII	34.04	.00	20.03	18.02	17.11	.15
HANTZSCHIA AMPHIOXYS	34.04	73.77	.00	35.93	36.92	.29
NAVICULA AURICULATA	.00	73.77	.00	24.59	42.59	.20
NAVICULA CRYPTOCEPHALA	.00	.00	60.08	20.03	34.68	.16
NAVICULA CRYPTOCEPHALA VAR. VENETA	136.16	.00	20.03	52.06	73.51	.43
NAVICULA HEUFLERI	204.23	258.18	40.05	167.49	113.61	1.37
NAVICULA MENISCULUS VAR. UPSALIENSIS	136.16	184.41	100.13	140.23	42.29	1.15
NAVICULA NOTHA	68.08	.00	.00	22.69	39.30	.19
NAVICULA PELLICULOSA	102.12	221.30	.00	107.80	110.77	.88
NAVICULA RHYNCHOCEPHALA	68.08	.00	20.03	29.37	34.99	.24
NAVICULA SECRETA VAR. APICULATA	2450.79	1254.01	1201.52	1635.44	706.60	13.42
NAVICULA VIRIDULA	3471.96	3725.15	2002.53	3066.55	930.12	25.16
NITZSCHIA ACICULARIS	34.04	.00	140.18	58.07	73.11	.48
NITZSCHIA APICULATA	.00	.00	80.10	26.70	46.25	.22
NITZSCHIA COMMUNIS	.00	36.88	.00	12.29	21.29	.10
NITZSCHIA DISSIPATA	578.66	1991.66	1201.52	1257.28	708.15	10.32
NITZSCHIA FRUSTULUM	612.70	737.65	1141.44	830.60	276.36	6.82
NITZSCHIA HOLSATICA	714.81	1106.48	640.81	820.70	250.24	6.73
NITZSCHIA HUNGARICA	.00	184.41	.00	61.47	106.47	.50
NITZSCHIA LINEARIS	340.39	.00	.00	113.46	196.52	.93
NITZSCHIA PALEA	1055.28	40[illegible]	700.89	720.60	325.70	5.91

NITZSCHIA SIGMOIDEA	885.01	627.60	520.66	677.56	187.36	5.56
NITZSCHIA TRYBLIONELLA VAR. LEVIDENS	.00	.00	20.03	6.68	11.56	.05
RHOICOSPHENIA CURVATA	34.04	36.88	20.03	30.32	9.02	.25
RHOPALODIA GIBBA	.00	.00	20.03	6.68	11.56	.05
RHOPALODIA MUSCULUS	68.08	36.88	20.03	41.66	24.38	.34
STEPHANODISCUS ASTREA	.00	.00	40.05	13.35	23.12	.11
SURIRELLA OVATA	68.08	110.65	40.05	72.93	35.55	.60
SYNEDRA FASCICULATA	.00	36.88	.00	12.29	21.29	.10
SYNEDRA MINUSCULA	34.04	.00	40.05	24.70	21.60	.20
SYNEDRA ULNA	68.08	73.77	100.13	80.66	17.10	.66
DIVISION TOTAL	12866.67	13093.33	10533.33	12164.44	1417.12	99.82
CHLOROPHYTA						
DRAPARNALDIA SP.	13.33	.00	.00	4.44	7.70	.04
DIVISION TOTAL	13.33	.00	.00	4.44	7.70	.04
CHRYSOPHYTA						
CYANOPHYTA						
ANABAENA SP.	.00	13.33	.00	4.44	7.70	.04
OSCILLATORIA SP.	40.00	.00	.00	13.33	23.09	.11
DIVISION TOTAL	40.00	13.33	.00	17.78	20.37	.15
TOTAL DENSITY	12920.00	13106.67	10533.33	12186.67	1434.87	100.00

DIVERSITY INDEX CALCULATIONS

SHANNON INDEX = 2.705
VARIANCE = .0001
MAXIMUM INDEX = 4.025
EVENNESS = .672
NO OF SPECIES = 56

STATION: 2 - MIDDLE STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-DEC

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES AFFINIS	.00	49.07	104.44	51.17	52.25	.42
ACHNANTHES LANCEOLATA	30.81	24.53	104.44	53.26	44.44	.44
ACHNANTHES LANCEOLATA VAR. DUBIA	30.81	24.53	52.22	35.85	14.52	.30
ACHNANTHES LINEARIS	.00	24.53	.00	8.18	14.16	.07
ACHNANTHES MICROCEPHALA	30.81	.00	.00	10.27	17.79	.09
ACHNANTHES MINUTISSIMA	61.61	122.67	261.11	148.46	102.22	1.23
AMPHORA PERPUSILLA	30.81	.00	.00	10.27	17.79	.09
CALONEIS AMPHISBAENA	.00	24.53	.00	8.18	14.16	.07
CALONEIS VENTRICOSA	30.81	.00	52.22	27.68	26.25	.23
COCCONEIS PLACENTULA	92.42	.00	.00	30.81	53.36	.26
CYCLOTELLA MENEGHINIANA	92.42	122.67	.00	71.69	63.91	.59
CYMBELLA MINUTA	30.81	24.53	.00	18.45	16.28	.15
CYMBELLA MINUTA VAR. SILESIACA	.00	.00	104.44	34.81	60.30	.29
CYMBELLA SINUATA	61.61	.00	.00	20.54	35.57	.17
DENTICULA ELEGANS	.00	24.53	.00	8.18	14.16	.07
DIATOMA VULGARE	.00	.00	52.22	17.41	30.15	.14
FRAGILARIA CONSTRUENS VAR. VENETA	.00	24.53	.00	8.18	14.16	.07
FRAGILARIA VAUCHERIAE	30.81	24.53	261.11	105.48	134.81	.87
GOMPHONEMA ANGUSTATUM	123.22	196.27	104.44	141.31	48.51	1.17
GOMPHONEMA OLIVACEUM	92.42	98.13	52.22	80.92	25.02	.67
GOMPHONEMA SIMUS	30.81	.00	52.22	27.68	26.25	.23
GOMPHONEMA SUBCLAVATUM	.00	49.07	52.22	33.76	29.28	.28
GYROSIGMA SPENCERII	30.81	.00	52.22	27.68	26.25	.23
HANTZSCHIA AMPHIOXYS	.00	73.60	.00	24.53	42.49	.20
MERIDION CIRCULARE	30.81	.00	.00	10.27	17.79	.09
NAVICULA ARVENSIS	30.81	.00	.00	10.27	17.79	.09
NAVICULA CINCTA	30.81	.00	.00	10.27	17.79	.09

NAVICULA CRYPTOCEPHALA	215.64	24.53	104.44	114.87	95.98	.95
NAVICULA CRYPTOCEPHALA VAR. VENETA	61.61	49.07	.00	36.89	32.56	.31
NAVICULA CUSPIDATA	.00	24.53	.00	8.18	14.16	.07
NAVICULA HEUFLERI	215.64	49.07	261.11	175.27	111.64	1.45
NAVICULA MENISCULUS VAR. UPSALIENSIS	61.61	.00	.00	20.54	35.57	.17
NAVICULA MINIMA	.00	49.07	.00	16.36	28.33	.14
NAVICULA PELLICULOSA	30.81	24.53	.00	18.45	16.28	.15
NAVICULA RHYNCHOCEPHALA	123.22	73.60	208.89	135.24	68.44	1.12
NAVICULA SECRETA VAR. APICULATA	3080.59	1496.53	2402.22	2326.45	794.74	19.27
NAVICULA VIRIDULA	2526.08	2453.33	5326.67	3435.36	1638.32	28.46
NITZSCHIA ACICULARIS	61.61	.00	.00	20.54	35.57	.17
NITZSCHIA DISSIPATA	677.73	343.47	261.11	427.44	220.64	3.54
NITZSCHIA FRUSTULUM	554.51	343.47	678.89	525.62	169.57	4.35
NITZSCHIA HOLSATICA	431.28	196.27	522.22	383.26	168.20	3.18
NITZSCHIA HUNGARICA	.00	98.13	52.22	50.12	49.10	.42
NITZSCHIA LINEARIS	154.03	.00	.00	51.34	88.93	.43
NITZSCHIA PALEA	1601.90	956.80	1357.78	1305.49	325.71	10.82
NITZSCHIA SIGMOIDEA	369.67	1447.47	1723.33	1160.16	715.33	9.76
NITZSCHIA TRYBLIONELLA VAR. LEVIDENS	30.81	.00	.00	10.27	17.79	.09
PINNULARIA BOREALIS	30.81	.00	.00	10.27	17.79	.09
PLEUROSIGMA DELICATISSIMA	.00	24.53	.00	8.18	14.16	.07
STEPHANODISCUS ASTREA	.00	24.53	104.44	42.99	54.61	.36
SURIRELLA OVALIS	.00	.00	104.44	34.81	60.30	.29
SURIRELLA OVATA	30.81	49.07	208.89	96.25	97.97	.80
SYNEDRA FASCICULATA	.00	49.07	.00	16.36	28.33	.14
SYNEDRA MINUSCULA	.00	24.53	104.44	42.99	54.61	.36
SYNEDRA PULCHELLA VAR. LANCEOLATA	30.81	.00	.00	10.27	17.79	.09
SYNEDRA ULNA	30.81	147.20	261.11	146.37	115.15	1.21
SYNEDRA ULNA VAR. OXYRHYNCHUS	.00	147.20	52.22	66.47	74.63	.55
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DIVISION TOTAL	11213.33	9003.73	15040.00	11752.36	3054.02	97.37

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CHLOROPHYTA

  DRAPARNALDIA SP.                        226.67      208.53      293.33      242.84       44.65          2.01
  MICROSPORA SP.                           26.67         .00         .00        8.89       15.40           .07
  OEDOGONIUM SP.                             .00         .00       26.67        8.89       15.40           .07
  PALMELLA STAGE OF CHAETOPHORACEAE       133.33         .00         .00       44.44       76.98           .37
  SCENEDESMUS QUADRICAUDA                  13.33         .00         .00        4.44        7.70           .04
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DIVISION TOTAL   .                        400.00      208.53      320.00      309.51       96.16          2.56


CHRYSOPHYTA


CYANOPHYTA

  ANABAENA SP.                             13.33       12.27         .00        8.53        7.41           .07
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DIVISION TOTAL                             13.33       12.27         .00        8.53        7.41           .07


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TOTAL DENSITY                           11626.67     9224.53    15360.00    12070.40     3091.71        100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX  = 2.559
VARIANCE       =  .0002
MAXIMUM INDEX  = 4.127
EVENNESS       =  .620
NO OF SPECIES  =    62

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STATION: 3 - HUNTER STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-OLD

TAXON	REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
	DENSITY (UNITS/MM2)					
BACILLARIOPHYTA						
ACHNANTHES AFFINIS	14.85	3.16	9.60	9.21	5.85	.87
ACHNANTHES LANCEOLATA	7.43	11.08	21.61	13.37	7.36	1.26
ACHNANTHES LANCEOLATA VAR. DUBIA	44.56	.00	2.40	15.65	25.06	1.47
ACHNANTHES MINUTISSIMA	237.65	39.56	199.25	158.82	105.05	14.95
AMPHORA PERPUSILLA	7.43	7.91	4.80	6.71	1.67	.63
COCCONEIS PEDICULUS	7.43	1.58	4.80	4.60	2.93	.43
COCCONEIS PLACENTULA	.00	1.58	.00	.53	.91	.05
CYCLOTELLA MENIGHINIANA	.00	1.58	.00	.53	.91	.05
CYMBELLA MINUTA VAR. SILESIACA	.00	.00	2.40	.80	1.39	.06
CYMBELLA SINUATA	.00	1.58	.00	.53	.91	.05
GOMPHONEMA ANGUSTATUM	.00	3.16	2.40	1.86	1.65	.17
GOMPHONEMA CLIVACEUM	22.28	4.75	4.80	10.61	10.11	1.0
GOMPHONEMA PARVULUM	7.43	.00	.00	2.48	4.29	.23
HANTZSCHIA AMPHIOXYS	.00	3.16	.00	1.05	1.83	.10
NAVICULA ARVENSIS	7.43	.00	.00	2.48	4.29	.23
NAVICULA CRYPTOCEPHALA	37.13	4.75	12.00	17.96	16.99	1.69
NAVICULA CRYPTOCEPHALA VAR. VENETA	7.43	.00	.00	2.48	4.29	.23
NAVICULA HEUFLERI	14.85	.00	2.40	5.75	7.97	.54
NAVICULA NOTHA	.00	.00	4.80	1.60	2.77	.15
NAVICULA SECRETA VAR. APICULATA	163.38	47.47	122.43	111.09	58.78	10.46
NAVICULA TRIPUNCTATA VAR. SCHIZONEMO	7.43	.00	.00	2.48	4.29	.23
NAVICULA VIRIDULA	1203.08	196.21	242.46	547.25	568.44	51.50
NITZSCHIA ACICULARIS	7.43	.00	.00	2.48	4.29	.23
NITZSCHIA DISSIPATA	51.98	22.15	60.02	44.72	19.95	4.21
NITZSCHIA FRUSTULUM	37.13	23.73	60.02	40.29	18.35	3.79
NITZSCHIA HUNGARICA	.00	1.58	4.80	2.13	2.45	.20
NITZSCHIA PALEA	37.13	14.24	33.61	28.33	12.33	2.67
NITZSCHIA SIGMOIDEA	37.13	14.24	.00	17.12	18.73	1.61
PINNULARIA BOREALIS	.00	3.16	.00	1.05	1.83	.10
RHOPALODIA GIBBERULA	.00	1.58	.00	.53	.91	.05
SURIRELLA OVATA	7.43	.00	.00	2.48	4.29	.23
SYNEDRA MINUSCULA	.00	.00	2.40	.80	1.39	.08
DIVISION TOTAL	1968.00	408.24	797.00	1057.75	811.91	99.55

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CHLOROPHYTA

  DRAPARNALDIA SP.                        5.33       3.75       4.49       4.52        .74        .43
                                      --------   --------   --------   --------   --------     ------
DIVISION TOTAL                            5.33       3.75       4.49       4.52        .74        .43


CHRYSOPHYTA


CYANOPHYTA

  OSCILLATORIA SP.                         .00        .75        .00        .25        .43        .02
                                      --------   --------   --------   --------   --------     ------
DIVISION TOTAL                             .00        .75        .00        .25        .43        .02


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TOTAL DENSITY                          1973.33     412.73     801.50    1062.52     812.38     100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 1.823
VARIANCE      =  .0021
MAXIMUM INDEX = 3.526
EVENNESS      =  .517

NO OF SPECIES =    34

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AUGUST (new)

PERIPHYTON DENSITY AND SPECIES DIVERSITY ESTIMATES

CATHEDRAL BLUFFS SHALE OIL COMPANY
TRACT C-B

SAMPLE DATE: 080180

STATION: 1 - STEWART STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-FLK

	DENSITY (UNITS/MM2)					
TAXON	REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES AFFINIS	575.71	312.32	496.49	461.51	135.13	2.41
ACHNANTHES LANCEOLATA	157.01	78.08	.00	78.36	78.51	.41
ACHNANTHES LANCEOLATA VAR. DUBIA	.00	.00	198.59	66.20	114.66	.35
ACHNANTHES MICROCEPHALA	.00	117.12	198.59	105.24	99.83	.55
ACHNANTHES MINUTISSIMA	1046.75	1483.54	1092.27	1207.52	240.12	6.31
AMPHORA PERPUSILLA	104.68	.00	.00	34.89	60.43	.18
CALONEIS AMPHISBAENA	52.34	.00	.00	17.45	30.22	.09
COCCONEIS PEDICULUS	.00	156.16	.00	52.05	90.16	.27
COCCONEIS PLACENTULA	.00	78.08	99.30	59.13	52.29	.31
CYCLOTELLA MENEGHINIANA	104.68	.00	49.65	51.44	52.36	.27
CYMBELLA SINUATA	.00	39.04	.00	13.01	22.54	.07
DIATOMA VULGARE	209.35	.00	.00	69.78	120.87	.36
FRAGILARIA VAUCHERIAE	157.01	117.12	248.24	174.13	67.22	.91
GOMPHONEMA ANGUSTATUM	157.01	351.36	148.95	219.11	114.61	1.14
GOMPHONEMA OLIVACEUM	209.35	78.08	99.30	128.91	70.47	.67
GYROSIGMA SPENCERII	52.34	.00	.00	17.45	30.22	.09
HANTZSCHIA AMPHIOXYS	52.34	.00	49.65	34.00	29.47	.18
NAVICULA CINCTA	104.68	.00	.00	34.89	60.43	.18
NAVICULA CRYPTOCEPHALA	104.68	351.36	99.30	185.11	144.00	.97
NAVICULA CRYPTOCEPHALA VAR. VENETA	.00	351.36	99.30	150.22	181.13	.79
NAVICULA HALOPHILA	157.01	.00	99.30	85.44	79.42	.45
NAVICULA HEUFLERI	104.68	.00	49.65	51.44	52.36	.27
NAVICULA MENISCULUS VAR. UPSALIENSIS	.00	78.08	198.59	92.23	100.05	.48
NAVICULA NOTHA	104.68	.00	546.14	216.94	289.66	1.13
NAVICULA PELLICULOSA	157.01	39.04	.00	65.35	81.75	.34
NAVICULA RHYNCHOCEPHALA	157.01	39.04	99.30	98.45	58.99	.51
NAVICULA SECRETA VAR. APICULATA	2878.57	2108.19	2234.19	2406.98	413.24	12.56
NAVICULA VIRIDULA	5233.76	3904.05	5213.11	4783.64	761.82	24.96
NAVICULA SP.	52.34	.00	.00	17.45	30.22	.09
NITZSCHIA ACICULARIS	104.68	.00	49.65	51.44	52.36	.27
NITZSCHIA COMMUNIS	.00	39.04	.00	13.01	22.54	.07
NITZSCHIA DISSIPATA	4291.68	2498.59	4617.33	3802.54	1140.92	19.84
NITZSCHIA FRUSTULUM	1099.09	1444.50	2879.63	1807.74	944.21	9.43
NITZSCHIA HOLSATICA	1405.45	546.57	347.54	766.52	596.33	4.10
NITZSCHIA HUNGARICA	.00	78.08	.00	26.03	45.08	.14
NITZSCHIA LINEARIS	104.68	312.32	99.30	172.10	121.47	.90
NITZSCHIA PALEA	889.74	507.53	1042.62	813.30	275.62	4.24
NITZSCHIA SIGMOIDEA	261.69	429.45	496.49	395.87	120.95	2.07
NITZSCHIA TRYBLIONELLA VAR. LEVIDENS	52.34	.00	.00	17.45	30.22	.09
RHOICOSPHENIA CURVATA	.00	78.08	.00	26.03	45.08	.14
SURIRELLA ANGUSTATA	52.34	.00	.00	17.45	30.22	.09
SURIRELLA OVATA	209.35	39.04	297.69	182.09	131.56	.95
SYNEDRA MINUSCULA	.00	78.08	.00	26.03	45.08	.14
SYNEDRA ULNA	.00	.00	49.65	16.55	28.66	.09
DIVISION TOTAL	20464.00	157[illegible]33	21200.00	19132.44	2966.63	49.84

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CHLOROPHYTA

  PANDORINA SP.                    5.33       .00       .00      1.78      3.08        .01
                               --------  --------  --------  --------  --------     ------
DIVISION TOTAL                     5.33       .00       .00      1.78      3.08        .01


CHRYSOPHYTA


CYANOPHYTA

  ANABAENA CIRCINALIS               .00     13.33       .00      4.44      7.70        .02
  ANABAENA SP.                    10.67       .00     13.33      8.00      7.06        .04
  OSCILLATORIA SP.                21.33       .00     26.67     16.00     14.11        .08
                               --------  --------  --------  --------  --------     ------
DIVISION TOTAL                    32.00     13.33     40.00     28.44     13.68        .15


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TOTAL DENSITY                  20501.33  15746.67  21240.00  19162.67   2981.31     100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 2.457
VARIANCE      =  .0001
MAXIMUM INDEX = 3.871
EVENNESS      =  .645
NO OF SPECIES =    48

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STATION   2 - MIDDLE STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NEW

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	.00	162.80	223.07	128.62	115.39	.46
ACHNANTHES LANCEOLATA VAR. DUBIA	81.13	.00	.00	27.04	46.84	.10
ACHNANTHES MINUTISSIMA	162.27	813.99	223.07	399.78	360.01	1.42
AMPHORA PERPUSILLA	.00	81.40	.00	27.13	47.00	.10
COCCONEIS PLACENTULA	.00	81.40	.00	27.13	47.00	.10
CYCLOTELLA MENEGHINIANA	81.13	81.40	74.36	78.96	3.99	.28
CYMBELLA MINUTA VAR. SILESIACA	.00	.00	148.71	49.57	85.86	.18
CYMBELLA SINUATA	.00	.00	74.36	24.79	42.93	.09
CYMBELLA TUMIDA	.00	81.40	.00	27.13	47.00	.10
DIATOMA HIEMALE VAR. MESODON	.00	.00	74.36	24.79	42.93	.09
FRAGILARIA CAPUCINA	.00	162.80	.00	54.27	93.99	.19
FRAGILARIA VAUCHERIAE	.00	162.80	.00	54.27	93.99	.19
GOMPHONEMA ANGUSTATUM	162.27	162.80	371.78	232.28	120.81	.82
GOMPHONEMA INTRICATUM	.00	.00	74.36	24.79	42.93	.09
GOMPHONEMA OLIVACEUM	162.27	325.60	966.63	484.83	425.17	1.72
HANTZSCHIA AMPHIOXYS	.00	81.40	74.36	51.92	45.10	.18
NAVICULA CRYPTOCEPHALA	.00	.00	446.14	148.71	257.58	.53
NAVICULA CRYPTOCEPHALA VAR. VENETA	324.53	81.40	520.49	308.81	219.97	1.10
NAVICULA EXIGUA	81.13	.00	74.36	51.83	45.01	.18
NAVICULA HALOPHILA	.00	162.80	.00	54.27	93.99	.19
NAVICULA HEUFLERI	324.53	325.60	594.85	414.99	155.76	1.47
NAVICULA MENISCULUS VAR. UPSALIENSIS	.00	81.40	.00	27.13	47.00	.10
NAVICULA NOTHA	.00	488.40	594.85	361.08	317.20	1.28
NAVICULA PELLICULOSA	.00	162.80	371.78	178.19	186.37	.63
NAVICULA RHYNCHOCEPHALA	567.93	569.80	446.14	527.95	70.86	1.87
NAVICULA SECRETA VAR. APICULATA	4462.29	5372.35	6097.22	5310.62	819.21	18.84
NAVICULA VIRIDULA	9330.24	8221.33	7584.35	8378.64	883.51	29.72
NITZSCHIA ACICULARIS	.00	.00	74.36	24.79	42.93	.09
NITZSCHIA COMMUNIS	.00	.00	74.36	24.79	42.93	.09
NITZSCHIA DISSIPATA	486.80	1627.99	1189.70	1101.49	575.69	3.91
NITZSCHIA FRUSTULUM	730.19	895.39	1189.70	938.43	232.76	3.33
NITZSCHIA HOLSATICA	1379.25	4721.16	1858.91	2653.11	1806.97	9.41
NITZSCHIA HUNGARICA	81.13	.00	371.78	150.97	195.46	.54
NITZSCHIA LATENS	.00	81.40	.00	27.13	47.00	.10
NITZSCHIA LINEARIS	.00	.00	297.43	99.14	171.72	.35
NITZSCHIA PALEA	1460.39	6756.14	3940.89	4052.47	2649.64	14.38
NITZSCHIA SIGMOIDEA	567.93	651.19	1040.99	753.37	252.54	2.67
NITZSCHIA TRYBLIONELLA VAR. LEVIDENS	.00	81.40	.00	27.13	47.00	.10
PINNULARIA SP.	.00	.00	74.36	24.79	42.93	.09
RHOICOSPHENIA CURVATA	81.13	.00	.00	27.04	46.84	.10
RHOPALODIA GIBBERULA	.00	.00	74.36	24.79	42.93	.09
STEPHANODISCUS ASTRAEA	.00	.00	148.71	49.57	85.86	.18
SURIRELLA ANGUSTATA	162.27	81.40	.00	81.22	81.13	.29
SURIRELLA OVALIS	.00	.00	223.07	74.36	128.79	.26
SURIRELLA OVATA	162.27	.00	297.43	153.23	148.92	.54
SYNEDRA ACUS	.00	.00	148.71	49.57	85.86	.18
SYNEDRA MINUSCULA	81.13	162.80	.00	81.31	81.40	.29
SYNEDRA ULNA	81.13	81.40	371.78	178.10	167.73	.63
DIVISION TOTAL	21013.33	32803.92	30411.76	28076.34	6232.59	99.60

STATION 2 - MIDDLE STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NEW

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	.00	162.80	223.07	128.62	115.39	.46
ACHNANTHES LANCEOLATA VAR. DUBIA	81.13	.00	.00	27.04	46.84	.10
ACHNANTHES MINUTISSIMA	162.27	813.99	223.07	399.78	360.01	1.42
AMPHORA PERPUSILLA	.00	81.40	.00	27.13	47.00	.10
COCCONEIS PLACENTULA	.00	81.40	.00	27.13	47.00	.10
CYCLOTELLA MENEGHINIANA	81.13	81.40	74.36	78.96	3.99	.28
CYMBELLA MINUTA VAR. SILESIACA	.00	.00	148.71	49.57	85.86	.18
CYMBELLA SINUATA	.00	.00	74.36	24.79	42.93	.09
CYMBELLA TUMIDA	.00	81.40	.00	27.13	47.00	.10
DIATOMA HIEMALE VAR. MESODON	.00	.00	74.36	24.79	42.93	.09
FRAGILARIA CAPUCINA	.00	162.80	.00	54.27	93.99	.19
FRAGILARIA VAUCHERIAE	.00	162.80	.00	54.27	93.99	.19
GOMPHONEMA ANGUSTATUM	162.27	162.80	371.78	232.28	120.81	.82
GOMPHONEMA INTRICATUM	.00	.00	74.36	24.79	42.93	.09
GOMPHONEMA OLIVACEUM	162.27	325.60	966.63	484.83	425.17	1.72
HANTZSCHIA AMPHIOXYS	.00	81.40	74.36	51.92	45.10	.18
NAVICULA CRYPTOCEPHALA	.00	.00	446.14	148.71	257.58	.53
NAVICULA CRYPTOCEPHALA VAR. VENETA	324.53	81.40	520.49	308.81	219.97	1.10
NAVICULA EXIGUA	81.13	.00	74.36	51.83	45.01	.18
NAVICULA HALOPHILA	.00	162.80	.00	54.27	93.99	.19
NAVICULA HEUFLERI	324.53	325.60	594.85	414.99	155.76	1.47
NAVICULA MENISCULUS VAR. UPSALIENSIS	.00	81.40	.00	27.13	47.00	.10
NAVICULA NOTHA	.00	488.40	594.85	361.08	317.20	1.28
NAVICULA PELLICULOSA	.00	162.80	371.78	178.19	186.37	.63
NAVICULA RHYNCHOCEPHALA	567.93	569.80	446.14	527.95	70.86	1.87
NAVICULA SECRETA VAR. APICULATA	4462.29	5372.35	6097.22	5310.62	819.21	18.84
NAVICULA VIRIDULA	9330.24	8221.33	7584.35	8378.64	883.51	29.72
NITZSCHIA ACICULARIS	.00	.00	74.36	24.79	42.93	.09
NITZSCHIA COMMUNIS	.00	.00	74.36	24.79	42.93	.09
NITZSCHIA DISSIPATA	486.80	1627.99	1189.70	1101.49	575.69	3.91
NITZSCHIA FRUSTULUM	730.19	895.39	1189.70	938.43	232.76	3.33
NITZSCHIA HOLSATICA	1379.25	4721.16	1858.91	2653.11	1806.97	9.41
NITZSCHIA HUNGARICA	81.13	.00	371.78	150.97	195.46	.54
NITZSCHIA LATENS	.00	81.40	.00	27.13	47.00	.10
NITZSCHIA LINEARIS	.00	.00	297.43	99.14	171.72	.35
NITZSCHIA PALEA	1460.39	6756.14	3940.89	4052.47	2649.64	14.38
NITZSCHIA SIGMOIDEA	567.93	651.19	1040.99	753.37	252.54	2.67
NITZSCHIA TRYBLIONELLA VAR. LEVIDENSIS	.00	81.40	.00	27.13	47.00	.10
PINNULARIA SP.	.00	.00	74.36	24.79	42.93	.09
RHOICOSPHENIA CURVATA	81.13	.00	.00	27.04	46.84	.10
RHOPALODIA GIBBERULA	.00	.00	74.36	24.79	42.93	.09
STEPHANODISCUS ASTRAEA	.00	.00	148.71	49.57	85.86	.18
SURIRELLA ANGUSTATA	162.27	81.40	.00	81.22	81.13	.29
SURIRELLA OVALIS	.00	.00	223.07	74.36	128.79	.26
SURIRELLA OVATA	162.27	.00	297.43	153.23	148.92	.54
SYNEDRA ACUS	.00	.00	148.71	49.57	85.86	.18
SYNEDRA MINUSCULA	81.13	162.80	.00	81.31	81.40	.29
SYNEDRA ULNA	81.13	81.40	371.78	178.10	167.73	.63
DIVISION TOTAL	21013.33	32403.92	30411.76	28076.34	6232.59	97.60

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CHLOROPHYTA

  DRAPARNALDIA SP.                          13.33      254.90         .00       89.41      143.47          .32
  OEDOGONIUM SP.                            13.33         .00         .00        4.44        7.70          .02
  PEDIASTRUM TETRA                          26.67         .00         .00        8.89       15.40          .03
  ULOTHRIX ZONATA                           13.33         .00         .00        4.44        7.70          .02
                                         --------    --------    --------    --------    --------       ------
DIVISION TOTAL                              66.67      254.90         .00      107.19      132.19          .36


CHRYSOPHYTA



CYANOPHYTA

  ANABAENA SP.                                .00       19.61         .00        6.54       11.32          .02
                                         --------    --------    --------    --------    --------       ------
DIVISION TOTAL                                .00       19.61         .00        6.54       11.32          .02


                                         --------    --------    --------    --------    --------       ------
TOTAL DENSITY                            21080.00    33078.43    30411.76    26190.07     6300.20       100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 2.398
VARIANCE      =  .0001
MAXIMUM INDEX = 3.970
EVENNESS      =  .604
NO OF SPECIES =    53

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STATION: 3 - HUNTER STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NEW

TAXON	REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
	DENSITY (UNITS/MM2)					
BACILLARIOPHYTA						
ACHNANTHES AFFINIS	.00	109.84	30.73	46.86	56.67	.54
ACHNANTHES LANCEOLATA	32.17	73.23	122.91	76.10	45.44	.88
ACHNANTHES MINUTISSIMA	32.17	183.07	92.16	102.47	75.97	1.19
COCCONEIS PEDICULUS	.00	.00	30.73	10.24	17.74	.12
COCCONEIS PLACENTULA	.00	36.61	.00	12.20	21.14	.14
CYCLOTELLA MENEGHINIANA	32.17	36.61	.00	22.93	19.98	.27
CYMBELLA MINUTA VAR. SILESIACA	32.17	.00	.00	10.72	18.57	.12
CYMBELLA SINUATA	32.17	.00	.00	10.72	18.57	.12
DIATOMA VULGARE	.00	36.61	.00	12.20	21.14	.14
FRAGILARIA VAUCHERIAE	.00	36.61	.00	12.20	21.14	.14
GOMPHONEMA ANGUSTATUM	32.17	73.23	.00	35.13	36.70	.41
GOMPHONEMA OLIVACEUM	.00	73.23	92.18	55.14	48.66	.64
GOMPHONEMA PARVULUM	.00	.00	30.73	10.24	17.74	.12
GYROSIGMA SPENCERII	32.17	36.61	.00	22.93	19.98	.27
HANTZSCHIA AMPHIOXYS	.00	73.23	.00	24.41	42.28	.28
NAVICULA CRYPTOCEPHALA	.00	.00	61.45	20.48	35.48	.24
NAVICULA CRYPTOCEPHALA VAR. VENETA	.00	36.61	.00	12.20	21.14	.14
NAVICULA HEUFLERI	96.52	73.23	122.91	97.55	24.86	1.13
NAVICULA MENISCULUS VAR. UPSALIENSIS	.00	73.23	.00	24.41	42.28	.28
NAVICULA PELLICULOSA	32.17	.00	.00	10.72	18.57	.12
NAVICULA PUPULA	.00	.00	30.73	10.24	17.74	.12
NAVICULA RHYNCHOCEPHALA	.00	36.61	.00	12.20	21.14	.14
NAVICULA SECRETA VAR. APICULATA	611.26	915.34	860.35	795.65	162.04	9.21
NAVICULA VIRIDULA	6305.66	6041.27	5039.20	5795.37	668.08	67.08
NEIDIUM SP.	32.17	.00	.00	10.72	18.57	.12
NITZSCHIA COMMUNIS	32.17	.00	.00	10.72	18.57	.12
NITZSCHIA DISSIPATA	289.55	366.14	522.36	392.68	118.65	4.54
NITZSCHIA FRUSTULUM	193.03	256.30	430.18	293.17	122.80	3.39
NITZSCHIA HOLSATICA	.00	73.23	92.18	55.14	48.66	.64
NITZSCHIA HUNGARICA	128.69	36.61	.00	55.10	66.31	.64
NITZSCHIA LINEARIS	.00	73.23	.00	24.41	42.28	.28
NITZSCHIA PALEA	193.03	292.91	337.99	274.65	74.19	3.18
NITZSCHIA SIGMOIDEA	160.86	109.84	92.18	120.96	35.66	1.40
PINNULARIA BOREALIS	.00	.00	30.73	10.24	17.74	.12
RHOICOSPHENIA CURVATA	32.17	.00	30.73	20.97	18.17	.24
RHOPALODIA MUSCULUS	32.17	.00	.00	10.72	18.57	.12
SURIRELLA ANGUSTATA	32.17	.00	30.73	20.97	18.17	.24
SURIRELLA OVATA	96.52	36.61	30.73	54.62	36.40	.63
SYNEDRA MINUSCULA	.00	.00	30.73	10.24	17.74	.12
SYNEDRA ULNA	.00	36.61	30.73	22.45	19.66	.26
DIVISION TOTAL	8493.33	9226.67	8173.33	8631.11	540.01	99.90
CHLOROPHYTA						
DRAPARNALDIA SP.	.00	26.67	.00	8.89	15.40	.10
DIVISION TOTAL	.00	26.67	.00	8.89	15.40	.10

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CHRYSOPHYTA


CYANOPHYTA
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                                                           8493.33     9253.33      8173.33     8640.00      554.74       100.00
TOTAL DENSITY
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 1.520
VARIANCE      =  .0004
MAXIMUM INDEX = 3.714
EVENNESS      =  .409
NO OF SPECIES =    41
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SEPTEMBER (9/02/80

PERIPHYTON DENSITY AND SPECIES DIVERSITY ESTIMATES

CATHEDRAL BLUFFS SHALE OIL COMPANY
TRACT C-B

SAMPLE DATE: 090280

STATION: 1 - STEWART STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NEW

	DENSITY (UNITS/MM2)					
TAXON	REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	492.93	230.69	92.94	272.19	203.20	1.90
ACHNANTHES MINUTISSIMA	6189.05	5075.21	6923.72	6062.66	930.71	42.41
AMPHORA PERPUSILLA	54.77	184.55	46.47	95.26	77.44	.67
COCCONEIS PLACENTULA	657.24	322.97	139.40	373.21	262.55	2.61
CYMBELLA MINUTA	.00	.00	92.94	30.98	53.66	.22
CYMBELLA MINUTA VAR. SILESIACA	213.08	138.41	.00	119.17	110.80	.83
CYMBELLA SINUATA	657.24	92.28	.00	249.84	355.83	1.75
FRAGILARIA VAUCHERIAE	54.77	.00	.00	18.26	31.62	.13
GOMPHONEMA ANGUSTATUM	931.10	369.11	139.40	479.67	407.30	3.36
GOMPHONEMA OLIVACEUM	.00	138.41	46.47	61.63	70.44	.43
GOMPHONEMA SUBCLAVATUM	.00	230.69	.00	76.90	133.19	.54
NAVICULA CRYPTOCEPHALA VAR. VENETA	.00	.00	232.34	77.45	134.14	.54
NAVICULA GRACILOIDES	547.70	.00	.00	182.57	316.22	1.28
NAVICULA HEUFLERI	.00	230.69	46.47	92.39	122.01	.65
NAVICULA MENISCULUS VAR. UPSALIENSIS	492.93	138.41	.00	210.45	254.24	1.47
NAVICULA MUTICA	.00	46.14	.00	15.38	26.64	.11
NAVICULA NOTHA	54.77	.00	.00	18.26	31.62	.13
NAVICULA RHYNCHOCEPHALA	54.77	.00	.00	18.26	31.62	.13
NAVICULA SECRETA VAR. APICULATA	54.77	92.28	.00	49.62	46.41	.34
NAVICULA TRIPUNCTATA VAR. SCHIZONEMO	.00	46.14	.00	15.38	26.64	.11
NAVICULA VIRIDULA	273.85	230.69	185.87	230.14	43.99	1.61
NITZSCHIA DISSIPATA	3943.46	3183.54	4739.73	3955.58	778.16	27.67
NITZSCHIA FRUSTULUM	547.70	1015.04	650.55	737.77	245.57	5.16
NITZSCHIA HUNGARICA	.00	.00	46.47	15.49	26.83	.11
NITZSCHIA PALEA	164.31	184.55	185.87	178.25	12.09	1.25
RHOICOSPHENIA CURVATA	.00	46.14	.00	15.38	26.64	.11
RHOPALODIA GIBBERULA	.00	92.28	.00	30.76	53.28	.22
SURIRELLA OVATA	54.77	.00	.00	18.26	31.62	.13
SYNEDRA MINUSCULA	54.77	.00	.00	18.26	31.62	.13
DIVISION TOTAL	15560.00	12088.24	13568.63	13718.95	1710.84	95.98
CHLOROPHYTA						
PALMELLA STAGE OF CHAETOPHORACEAE	117.65	705.88	872.55	565.36	396.58	3.96
DIVISION TOTAL	117.65	705.88	872.55	565.36	396.58	3.96

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CHRYSOPHYTA



CYANOPHYTA

  ANABAENA SP.                            9.80       9.80        .00       6.54       5.66           .05
  OSCILLATORIA SP.                         .00       9.80        .00       3.27       5.66           .02
                                      --------   --------   --------   --------   --------        ------
DIVISION TOTAL                            9.80      19.61        .00       9.80       9.80           .07


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TOTAL DENSITY                         15627.45   12813.73   14441.18   14294.12    1412.62        100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 1.903
VARIANCE      =  .0001
MAXIMUM INDEX = 3.466
EVENNESS      =  .549
NO OF SPECIES =    32

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STATION: 2 - MIDDLE STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NF.

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	857.68	764.92	863.67	828.76	55.36	7.83
ACHNANTHES LANCEOLATA VAR. DUBIA	.00	229.48	638.36	289.28	323.36	2.73
ACHNANTHES MINUTISSIMA	3296.69	5239.71	6759.16	5098.52	1735.55	48.20
COCCONEIS PEDICULUS	.00	38.25	.00	12.75	22.08	.12
COCCONEIS PLACENTULA	2251.40	2868.46	1276.73	2132.19	802.53	20.16
CYMBELLA MINUTA	26.80	38.25	.00	21.68	19.63	.20
CYMBELLA MINUTA VAR. SILESIACA	214.42	.00	788.57	334.33	407.73	3.16
CYMBELLA SINUATA	26.80	191.23	262.66	160.30	121.03	1.52
CYMBELLA TUMIDA	.00	.00	225.31	75.10	130.08	.71
GOMPHONEMA OLIVACEUM	26.80	.00	.00	8.93	15.47	.08
NAVICULA ARVENSIS	.00	38.25	.00	12.75	22.08	.12
NAVICULA NOTHA	26.80	.00	75.10	33.97	38.06	.32
NAVICULA SECRETA VAR. APICULATA	80.41	191.23	225.31	165.65	75.76	1.57
NAVICULA TRIPUNCTATA VAR. SCHIZONEMO	26.80	.00	37.55	21.45	19.34	.20
NAVICULA VIRIDULA	160.81	267.72	112.65	180.40	79.37	1.71
NITZSCHIA DISSIPATA	26.80	497.20	337.96	287.32	239.25	2.72
NITZSCHIA FRUSTULUM	.00	38.25	262.86	100.37	142.01	.95
NITZSCHIA PALEA	26.80	38.25	75.10	46.72	25.24	.44
DIVISION TOTAL	7049.02	10441.18	11941.18	9810.46	2506.32	92.74
CHLOROPHYTA						
PALMELLA STAGE OF CHAETOPHORACEAE	264.31	1352.94	480.39	705.88	568.86	6.67
SPIROGYRA SP.	.00	.00	29.41	9.80	16.98	.09
STIGEOCLONIUM TENUE	.00	.00	19.61	6.54	11.32	.06
DIVISION TOTAL	264.31	1352.94	529.41	722.22	559.80	6.83
CHRYSOPHYTA						
CYANOPHYTA						
ANABAENA SP.	9.80	.00	.00	3.27	5.66	.03
PHORMIDIUM SP.	.00	.00	117.65	39.22	67.92	.37
MERISMOPEDIA SP.	9.80	.00	.00	3.27	5.66	.03
DIVISION TOTAL	19.61	.00	117.65	45.75	63.03	.43
TOTAL DENSITY	7352.94	[illegible]94.12	12588.24	10578.43	2821.44	100.0[illegible]

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 1.764
VARIANCE      =  .0002
MAXIMUM INDEX = 3.178
EVENNESS      =  .555
NO OF SPECIES =    24

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STATION:   3 - HUNTER STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NEW

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                                                             DENSITY (UNITS/MM2)

 TAXON                                          REP 1       REP 2       REP 3        MEAN        S.D.   % RELATIVE ABUNDANCE
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BACILLARIOPHYTA

 ACHNANTHES AFFINIS                            466.22         .00         .00      155.41      269.17          1.14
 ACHNANTHES LANCEOLATA                         466.22      734.48      623.61      608.11      134.80          4.46
 ACHNANTHES LANCEOLATA VAR. DUBIA                 .00       86.41       77.95       54.79       47.64           .40


 ACHNANTHES MICROCEPHALA                       139.87       43.20         .00       61.02       71.62           .45
 ACHNANTHES MINUTISSIMA                       6993.34     6739.96     6625.87     6786.39      188.08         49.74
 AMPHORA PERPUSILLA                            326.36      518.46         .00      281.60      262.11          2.06
 COCCONEIS PEDICULUS                           139.87       86.41       77.95      101.41       33.57           .74
 COCCONEIS PLACENTULA                          512.85      864.10      740.54      705.83      178.18          5.17
 CYCLOTELLA MENEGHINIANA                          .00       43.20       38.98       27.39       23.82           .20
 CYMBELLA MINUTA                                46.62       86.41         .00       44.34       43.25           .33
 CYMBELLA MINUTA VAR. SILESIACA                   .00       86.41       38.98       41.80       43.27           .31
 CYMBELLA SINUATA                               46.62      129.61         .00       58.75       65.65           .43
 FRAGILARIA VAUCHERIAE                            .00         .00       38.98       12.99       22.50           .10
 GOMPHONEMA ANGUSTATUM                            .00         .00       77.95       25.98       45.01           .19
 GOMPHONEMA OLIVACEUM                           46.62       43.20         .00       29.94       25.99           .22
 NAVICULA CRYPTOCEPHALA VAR. VENETA             46.62         .00       38.98       28.53       25.00           .21
 NAVICULA HEUFLERI                                .00       43.20         .00       14.40       24.94           .11
 NAVICULA MENISCULUS VAR. UPSALIENSIS             .00       86.41      116.93       67.78       60.65           .50
 NAVICULA PELLICULOSA                          139.87      129.61      311.81      193.76      102.36          1.42
 NAVICULA SECRETA VAR. APICULATA               326.36      172.82       38.98      179.38      143.80          1.31
 NAVICULA TRIPUNCTATA VAR. SCHIZONEMO             .00       43.20         .00       14.40       24.94           .11
 NAVICULA VIRIDULA                             326.36      648.07      545.66      506.70      164.36          3.71
 NITZSCHIA DISSIPATA                          1911.51      604.87     1403.13     1306.50      658.66          9.58
 NITZSCHIA FRUSTULUM                           606.09      734.48      155.90      498.83      303.84          3.66
 NITZSCHIA HOLSATICA                              .00      432.05       77.95      170.00      230.26          1.25
 NITZSCHIA PALEA                               233.11      172.82      116.93      174.29       58.11          1.28
                                             --------    --------    --------    --------    --------        ------
DIVISION TOTAL                               12774.51    12529.41    11147.06    12150.33      877.46         89.05
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CHLOROPHYTA

  PALMELLA STAGE OF CHAETOPHORACEAE          794.12     1921.57     1696.08     1470.59      596.59        10.78
  PANDORINA SP.                               49.02         .00         .00       16.34       28.30          .12
                                           --------    --------    --------    --------    --------       ------
DIVISION TOTAL                               843.14     1921.57     1696.08     1486.93      568.82        10.9


CHRYSOPHYTA


CYANOPHYTA

  PHORMIDIUM SP.                                .00       19.61         .00        6.54       11.32          .05
                                           --------    --------    --------    --------    --------       ------
DIVISION TOTAL                                  .00       19.61         .00        6.54       11.32          .0


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TOTAL DENSITY                              13617.65    14470.59    12843.14    13643.79      814.04        100.0
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 1.959
VARIANCE      =  .0002
MAXIMUM INDEX = 3.367
EVENNESS      =  .582
NO OF SPECIES =    29

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SEPTEMBER (9/29/80)

PERIPHYTON DENSITY AND SPECIES DIVERSITY ESTIMATES

CATHEDRAL BLUFFS SHALE OIL COMPANY
TRACT C-B

SAMPLE DATE: 092980

STATION: 1 - STEWART STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDE-NEW

	DENSITY (UNITS/MM2)					
TAXON	REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	.00	.00	5.30	1.77	3.06	.09
ACHNANTHES LANCEOLATA VAR. DUBIA	542.38	114.13	74.14	243.55	259.57	12.23
ACHNANTHES MINUTISSIMA	473.81	634.05	370.71	492.85	132.70	24.75
AMPHORA PERPUSILLA	68.58	.00	.00	22.86	39.59	1.15
COCCONEIS PEDICULUS	.00	38.04	.00	12.68	21.96	.64
COCCONEIS PLACENTULA	654.60	1280.78	545.47	826.95	396.80	41.53
CYCLOTELLA MENEGHINIANA	6.23	12.68	.00	6.31	6.34	.32
CYMBELLA MINUTA VAR. SILESIACA	18.70	12.68	10.59	13.99	4.21	.70
CYMBELLA SINUATA	18.70	.00	5.30	8.00	9.64	.40
EPITHEMIA SOREX	12.47	12.68	.00	8.38	7.26	.42
GOMPHONEMA ACUMINATUM	6.23	.00	5.30	3.84	3.36	.19
GOMPHONEMA OLIVACEUM	12.47	12.68	5.30	10.15	4.20	.51
GOMPHONEMA PARVULUM	6.23	.00	.00	2.08	3.60	.10
HANTZSCHIA AMPHIOXYS	6.23	.00	.00	2.08	3.60	.10
NAVICULA CRYPTOCEPHALA	6.23	.00	.00	2.08	3.60	.10
NAVICULA CRYPTOCEPHALA VAR. VENETA	.00	.00	52.96	17.65	30.58	.89
NAVICULA GRACILOIDES	.00	25.36	.00	8.45	14.64	.42
NAVICULA HEUFLERI	12.47	.00	.00	4.16	7.20	.21
NAVICULA LANCEOLATA	.00	12.68	.00	4.23	7.32	.21
NAVICULA SECRETA VAR. APICULATA	12.47	.00	5.30	5.92	6.26	.30
NAVICULA VIRIDULA VAR. AVENACEA	18.70	63.40	21.18	34.43	25.12	1.73
NITZSCHIA DISSIPATA	31.17	431.15	121.80	194.71	209.72	9.78
NITZSCHIA FRUSTULUM	24.94	50.72	10.59	28.75	20.34	1.44
NITZSCHIA LINEARIS	6.23	12.68	.00	6.31	6.34	.32
RHOICOSPHENIA CURVATA	6.23	.00	.00	2.08	3.60	.10
SYNEDRA ULNA	.00	.00	5.30	1.77	3.06	.09
DIVISION TOTAL	1945.10	2713.73	1239.22	1966.01	737.48	98.74

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CHLOROPHYTA

  BULBOCHAETA SP.                            .76        .00        .00        .26        .45         .01
  PALMELLA STAGE OF CHAETOPHORACEAE        11.76      62.75        .00      24.84      33.35        1.25
                                        --------   --------   --------   --------   --------      ------
DIVISION TOTAL        .                    12.55      62.75        .00      25.10      33.20        1.26


CHRYSOPHYTA



CYANOPHYTA

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TOTAL DENSITY                            1957.65    2776.47    1239.22    1991.11     769.17     . 100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 1.771
VARIANCE      =  .0008
MAXIMUM INDEX = 3.332
EVENNESS      =  .531
NO OF SPECIES =    28

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STATION: 2 - MIDDLE STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDE-NEW

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	.00	.00	248.74	82.91	143.61	.64
ACHNANTHES LANCEOLATA VAR. DUBIA	2413.66	763.88	912.04	1362.99	912.40	10.53
ACHNANTHES MINUTISSIMA	9816.65	3637.52	9288.27	7580.82	3425.35	58.58
AMPHORA PERPUSILLA	.00	72.75	.00	24.25	42.00	.19
COCCONEIS PEDICULUS	83.21	36.38	.00	39.86	41.71	.31
COCCONEIS PLACENTULA	1414.55	1273.13	1989.92	1559.20	379.65	12.05
CYMBELLA MINUTA	.00	.00	82.91	27.64	47.87	.21
CYMBELLA MINUTA VAR. SILESIACA	332.84	109.13	82.91	174.96	137.35	1.35
CYMBELLA SINUATA	249.63	.00	82.91	110.85	127.14	.86
FRAGILARIA VAUCHERIAE	166.42	.00	165.83	110.75	95.91	.86
GOMPHONEMA OLIVACEUM	748.88	36.38	331.65	372.30	357.99	2.88
GOMPHONEMA SUBCLAVATUM	83.21	.00	.00	27.74	48.04	.21
NAVICULA CRYPTOCEPHALA	582.46	72.75	248.74	301.32	258.89	2.33
NAVICULA VIRIDULA VAR. AVENACEA	499.25	36.38	82.91	206.18	254.87	1.59
NITZSCHIA DISSIPATA	.00	509.25	.00	169.75	294.02	1.31
NITZSCHIA FRUSTULUM	.00	36.38	331.65	122.68	181.89	.95
NITZSCHIA HUNGARICA	.00	72.75	.00	24.25	42.00	.19
NITZSCHIA LINEARIS	.00	36.38	.00	12.13	21.00	.09
NITZSCHIA TRYBLIONELLA VAR. LEVIDENS	.00	36.38	.00	12.13	21.00	.09
SURIRELLA OVATA	.00	.00	82.91	27.64	47.87	.21
DIVISION TOTAL	16392.16	6729.41	13929.41	12350.33	5021.18	95.43
CHLOROPHYTA						
PALMELLA STAGE OF CHAETOPHORACEAE	784.31	345.10	627.45	565.62	222.58	4.53
DIVISION TOTAL	784.31	345.10	627.45	565.62	222.58	4.53
CHRYSOPHYTA						
CYANOPHYTA						
EUGLENA ARCUS	.00	.00	15.69	5.23	9.06	.04
DIVISION TOTAL	.00	.00	15.69	5.23	9.06	.04
TOTAL DENSITY	17176.47	7074.51	14572.55	12941.18	5244.85	100.00

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DIVERSITY INDEX CALCULATIONS
----------------------------

SHANNON INDEX  =  1.571
VARIANCE       =   .0002
MAXIMUM INDEX  =  3.091
EVENNESS       =   .508
NO OF SPECIES  =     22

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STATION:   3 - HUNTER STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDE-NEW

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                                                                   DENSITY (UNITS/MM2)

  TAXON                                        REP 1        REP 2        REP 3         MEAN         S.D.    % RELATIVE ABUNDANCE
-----------------------------------------------------------------------------------------------------------------------

BACILLARIOPHYTA

  ACHNANTHES LANCEOLATA                        18.31          .00          .00         6.10        10.57         .37
  ACHNANTHES LANCEOLATA VAR. DUBIA            457.68       645.91       402.73       502.10       127.53       30.63
  ACHNANTHES MINUTISSIMA                      439.37       155.02       186.26       260.22       155.94       15.67
  AMPHORA PERPUSILLA                           13.73          .00         5.03         6.25         6.95         .36
  COCCONEIS PEDICULUS                         114.42       232.53       125.85       157.60        65.14        9.61
  COCCONEIS PLACENTULA                        466.83       465.05       523.54       485.14        33.27       29.60
  CYMBELLA AFFINIS                               .00         6.46          .00         2.15         3.73         .13
  CYMBELLA MINUTA VAR. SILESIACA                4.58         6.46         5.03         5.36          .98         .33
  CYMBELLA SINUATA                               .00        25.84          .00         8.61        14.92         .53
  EPITHEMIA SOREX                                .00        19.38          .00         6.46        11.19         .39
  FRAGILARIA CONSTRUENS VAR. VENETA              .00          .00         5.03         1.68         2.91         .10
  FRAGILARIA VAUCHERIAE                         4.58          .00         5.03         3.20         2.76         .20


  GOMPHONEMA OLIVACEUM                           .00        12.92        20.14        11.02        10.20         .67
  MERIDION CIRCULARE                             .00          .00         5.03         1.68         2.91         .10
  NAVICULA CRYPTOCEPHALA                       32.04         6.46         5.03        14.51        15.20         .89
  NAVICULA CRYPTOCEPHALA VAR. VENETA            4.58          .00          .00         1.53         2.64         .09
  NAVICULA MENISCULUS VAR. UPSALIENSIS          4.58          .00          .00         1.53         2.64         .09
  NAVICULA NOTHA                                4.58         6.46          .00         3.68         3.32         .22
  NAVICULA SECRETA VAR. APICULATA              22.88          .00         5.03         9.31        12.03         .57
  NAVICULA VIRIDULA VAR. AVENACEA              68.65        19.38        15.10        34.38        29.76        2.10
  NITZSCHIA DISSIPATA                          91.54         6.46        40.27        46.09        42.84        2.81
  NITZSCHIA FRUSTULUM                          13.73        25.84        25.17        21.58         6.81        1.32
  NITZSCHIA IGNORATA                           22.88          .00          .00         7.63        13.21         .47
  NITZSCHIA LINEARIS                            4.58         6.46        15.10         8.71         5.61         .53
  NITZSCHIA PALEA                              32.04          .00        15.10        15.71        16.03         .96
  NITZSCHIA SP.                                  .00         6.46          .00         2.15         3.73         .13
  SURIRELLA ANGUSTATA                           4.58          .00          .00         1.53         2.64         .09
  SURIRELLA OVATA                               4.58          .00        15.10         6.56         7.74         .40
  SYNEDRA MINUSCULA                             4.58          .00          .00         1.53         2.64         .09
                                            --------     --------     --------     --------     --------      ------
DIVISION TOTAL                               1835.29      1647.06      1419.61      1633.99       208.15       99.68
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CHLOROPHYTA

  PALMELLA STAGE OF CHAETOPHORACEAE     15.69      .00      .00     5.23     9.06      .32
                                     --------  --------  --------  --------  --------  ------
DIVISION TOTAL                          15.69      .00      .00     5.23     9.06      .32


CHRYSOPHYTA


CYANOPHYTA

                                     --------  --------  --------  --------  --------  ------
TOTAL DENSITY                         1850.98  1647.06  1419.61  1639.22   215.79   100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX =  1.915
VARIANCE      =   .0010
MAXIMUM INDEX =  3.401
EVENNESS      =   .563
NO OF SPECIES =    30
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OCTOBER

PERIPHYTON DENSITY AND SPECIES DIVERSITY ESTIMATES

CATHEDRAL BLUFFS SHALE OIL COMPANY
TRACT C-B

SAMPLE DATE: 102980

STATION: 1 - STEWART STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-PER

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA VAR. DUBIA	.00	348.28	584.25	310.85	293.92	1.45
ACHNANTHES MINUTISSIMA	7569.91	10613.17	12853.52	10145.53	2644.29	47.31
AMPHORA PERPUSILLA	.00	435.36	.00	145.12	251.35	.68
COCCONEIS PEDICULUS	.00	87.07	.00	29.02	50.27	.14
COCCONEIS PLACENTULA	.00	.00	116.85	38.95	67.46	.11
CYCLOTELLA MENEGHINIANA	.00	87.07	.00	29.02	50.27	.14
CYMBELLA AFFINIS	.00	.00	116.85	38.95	67.46	.18
CYMBELLA MICROCEPHALA	.00	.00	116.85	38.95	67.46	.18
CYMBELLA MINUTA	.00	174.14	350.55	174.90	175.20	.82
CYMBELLA MINUTA VAR. SILESIACA	1102.41	522.43	116.85	580.56	495.35	2.71
DIATOMA VULGARE	.00	87.07	.00	29.02	50.27	.14
FRAGILARIA VAUCHERIAE	.00	87.07	.00	29.02	50.27	.14
GOMPHONEMA OLIVACEUM	3527.72	1219.00	584.25	1776.99	1549.04	8.29
GOMPHONEMA PARVULUM	220.48	87.07	233.70	180.42	81.11	.84
GOMPHONEMA SUBCLAVATUM	73.49	.00	467.40	180.30	251.34	.84
NAVICULA CRYPTOCEPHALA	367.47	783.64	584.25	578.45	208.14	2.70
NAVICULA CRYPTOCEPHALA VAR. VENETA	.00	87.07	233.70	106.92	118.11	.50
NAVICULA HEUFLERI	73.49	.00	.00	24.50	42.43	.11
NAVICULA NOTHA	.00	174.14	.00	58.05	100.54	.27
NAVICULA SECRETA VAR. APICULATA	734.94	2502.63	1402.20	1379.93	634.14	6.44
NAVICULA VIRIDULA VAR. AVENACEA	2498.80	2089.71	2453.85	2347.45	224.35	10.95
NITZSCHIA APICULATA	.00	.00	116.85	38.95	67.46	.18
NITZSCHIA DISSIPATA	1616.87	2873.35	1285.35	1925.19	637.69	8.98
NITZSCHIA FRUSTULUM	440.97	348.24	116.85	302.03	166.93	1.41
NITZSCHIA IGNORATA	.00	87.07	.00	29.02	50.27	.14
NITZSCHIA PALEA	.00	435.36	116.85	184.07	225.33	.86
RHOICOSPHENIA CURVATA	220.48	.00	.00	73.49	127.30	.34
SURIRELLA OVATA	.00	174.14	.00	58.05	100.54	.27
SYNEDRA ULNA VAR. OXYRHYNCHUS	.00	87.07	.00	29.02	50.27	.14
	--------	--------	--------	--------	--------	------
DIVISION TOTAL	18447.06	22290.20	21650.98	20862.75	2103.54	97.29
CHLOROPHYTA						
CLADOPHORA SP.	.00	.00	62.75	20.92	36.23	.10
PALMELLA STAGE OF CHAETOPHORACEAE	266.67	909.80	470.59	549.02	328.66	2.56
	--------	--------	--------	--------	--------	------
DIVISION TOTAL	266.67	909.80	533.33	569.93	323.13	2.66

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CHRYSOPHYTA


CYANOPHYTA

  DACTYLOCOCCOPSIS RAPHIDIOIDES              .00        .00      31.37      10.46      18.11        .05
                                        --------   --------   --------   --------   --------     ------
DIVISION TOTAL                               .00        .00      31.37      10.46      18.11        .05


                                        --------   --------   --------   --------   --------     ------
TOTAL DENSITY                           18713.73   23200.00   22415.69   21443.14    2396.05     100.00

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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 1.996
VARIANCE      =  .0001
MAXIMUM INDEX = 3.466
EVENNESS      =  .576
NO OF SPECIES =    22

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STATION: 2 - MIDDLE STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NEW

	DENSITY (UNITS/MM2)					
TAXON	REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES LANCEOLATA	539.25	713.68	.00	417.64	372.06	1.74
ACHNANTHES MINUTISSIMA	3235.50	3925.25	3487.15	3549.30	349.05	14.81
AMPHORA PERPUSILLA	.00	142.74	.00	47.58	82.41	.20
COCCONEIS PEDICULUS	385.18	428.21	197.39	336.92	122.74	1.41
COCCONEIS PLACENTULA	.00	428.21	394.77	274.33	238.16	1.15
CYCLOTELLA MENEGHINIANA	77.04	570.95	197.39	281.79	257.55	1.18
CYMBELLA MINUTA	77.04	.00	.00	25.68	44.48	.11
CYMBELLA MINUTA VAR. SILESIACA	847.39	1213.26	1250.11	1103.59	222.63	4.61
DIATOMA VULGARE	.00	71.37	.00	23.79	41.20	.10
FRAGILARIA LEPTOSTAURON	.00	71.37	.00	23.79	41.20	.10
FRAGILARIA VAUCHERIAE	231.11	142.74	131.59	168.48	54.52	.70
GOMPHONEMA OLIVACEUM	924.43	570.95	328.98	608.12	299.46	2.54
GOMPHONEMA PARVULUM	847.39	1213.26	131.59	730.75	550.19	3.05
GOMPHONEMA SUBCLAVATUM	154.07	.00	131.59	95.22	83.23	.40
GYROSIGMA ACUMINATUM	.00	71.37	.00	23.79	41.20	.10
NAVICULA CRYPTOCEPHALA	.00	71.37	328.98	133.45	173.05	.56
NAVICULA CRYPTOCEPHALA VAR. VENETA	1309.61	1498.73	723.75	1177.36	404.06	4.91
NAVICULA LANCEOLATA	154.07	.00	.00	51.36	88.95	.21
NAVICULA NOTHA	.00	.00	131.59	43.86	75.97	.18
NAVICULA SECRETA VAR. APICULATA	2696.25	2640.62	1381.70	2239.53	743.42	9.35
NAVICULA VIRIDULA VAR. AVENACEA	7780.62	7707.77	6579.52	7355.97	673.41	30.70
NITZSCHIA APICULATA	.00	.00	65.80	21.93	37.99	.09
NITZSCHIA DISSIPATA	539.25	1141.89	197.39	626.18	478.22	2.61
NITZSCHIA FRUSTULUM	847.39	1784.21	328.98	986.86	737.57	4.12
NITZSCHIA IGNORATA	.00	142.74	.00	47.58	82.41	.20
NITZSCHIA LINEARIS	539.25	214.10	65.80	273.05	242.17	1.14
NITZSCHIA PALEA	.00	142.74	.00	47.58	82.41	.20
RHOICOSPHENIA CURVATA	231.11	356.84	328.98	305.64	66.03	1.28
SURIRELLA ANGUSTATA	77.04	.00	.00	25.68	44.48	.11
SURIRELLA OVALIS	.00	142.74	65.80	69.51	71.44	.29
SURIRELLA OVATA	77.04	214.10	131.59	140.91	69.01	.59
SYNEDRA MINUSCULA	.00	71.37	.00	23.79	41.20	.10
SYNEDRA ULNA	77.04	142.74	.00	73.26	71.44	.31
	--------	--------	--------	--------	--------	------
DIVISION TOTAL	21647.06	25835.29	16580.39	21354.25	4634.39	89.13

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CHLOROPHYTA

  PALMELLA STAGE OF CHAETOPHORACEAE        3247.06    2541.18    1913.73    2567.32     667.05       10.72
  STIGEOCLONIUM TENUE                          .00     109.80        .00      36.60      63.40         .15
                                          ---------  ---------  ---------  ---------  ---------     ------
DIVISION TOTAL                             3247.06    2650.98    1913.73    2603.92     667.91       10.87


CHRYSOPHYTA


CYANOPHYTA

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TOTAL DENSITY                             24894.12   20486.27   18494.12   23958.17    5061.40      100.00
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DIVERSITY INDEX CALCULATIONS
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SHANNON INDEX = 2.434
VARIANCE      =  .0001
MAXIMUM INDEX = 3.555
EVENNESS      =  .685
NO OF SPECIES =    35

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STATION: 3 - HUNTER STATION
REPLICATES - 3
SUBSTRATE - GLASS SLIDES-NEW

TAXON	DENSITY (UNITS/MM2) REP 1	REP 2	REP 3	MEAN	S.D.	% RELATIVE ABUNDANCE
BACILLARIOPHYTA						
ACHNANTHES AFFINIS	169.92	.00	.00	56.64	98.10	.47
ACHNANTHES LANCEOLATA	254.88	182.73	.00	145.87	131.37	1.20
ACHNANTHES LANCEOLATA VAR. DUBIA	339.83	.00	.00	113.28	196.20	.93
ACHNANTHES MINUTISSIMA	424.79	.00	1303.79	576.20	664.95	4.74
CALONEIS VENTRICOSA	.00	.00	65.19	21.73	37.64	.18
COCCONEIS PEDICULUS	339.83	730.91	260.76	443.83	251.74	3.65
COCCONEIS PLACENTULA	.00	91.36	260.76	117.37	132.31	.97
CYMBELLA MINUTA	84.96	.00	.00	28.32	49.05	.23
CYMBELLA SINUATA	84.96	.00	.00	28.32	49.05	.23
GOMPHONEMA OLIVACEUM	.00	91.36	65.19	52.18	47.05	.43
GOMPHONEMA PARVULUM	169.92	.00	65.19	78.37	85.72	.64
HANTZSCHIA AMPHIOXYS	84.96	.00	.00	28.32	49.05	.23
NAVICULA CRYPTOCEPHALA	.00	91.36	.00	30.45	52.75	.25
NAVICULA CRYPTOCEPHALA VAR. VENETA	679.67	91.36	.00	257.01	368.87	2.11
NAVICULA HEUFLERI	.00	91.36	.00	30.45	52.75	.25
NAVICULA SECRETA VAR. APICULATA	169.92	274.09	65.19	169.73	104.45	1.40
NAVICULA VIRIDULA VAR. AVENACEA	8750.73	9867.27	7496.82	8704.94	1185.89	71.57
NITZSCHIA APICULATA	.00	91.36	65.19	52.18	47.05	.43
NITZSCHIA DENTICULA	84.96	.00	.00	28.32	49.05	.23
NITZSCHIA FRUSTULUM	509.75	.00	65.19	191.65	277.41	1.58
NITZSCHIA IGNORATA	84.96	.00	.00	28.32	49.05	.23
NITZSCHIA LINEARIS	339.83	274.09	260.76	291.56	42.33	2.40
RHOPALODIA GIBBERULA	.00	.00	65.19	21.73	37.64	.18
SURIRELLA OVALIS	84.96	91.36	.00	58.77	51.00	.48
DIVISION TOTAL	12658.82	11968.63	10039.22	11555.56	1357.76	95.01

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CHLOROPHYTA

  PALMELLA STAGE OF CHAETOPHORACEAE          235.29      1427.45      156.86      606.54      712.01        4.99
                                            --------    --------    --------    --------    --------      ------
DIVISION TOTAL                               235.29      1427.45      156.86      606.54      712.01        4.99


CHRYSOPHYTA


CYANOPHYTA

                                            --------    --------    --------    --------    --------      ------
TOTAL DENSITY                               12894.12    13396.08    10196.08    12162.09     1721.02      100.00
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DIVERSITY INDEX CALCULATIONS
----------------------------

SHANNON INDEX = 1.345
VARIANCE      =  .0002
MAXIMUM INDEX = 3.219
EVENNESS      =  .418
NO OF SPECIES =    25
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PERIPHYTON BIOMASS (RAW DATA)

- Station 1 = Stewart Station (WP01)
- Station 2 = Middle Station (WP02)
- Station 3 = Hunter Station (WP03)

- June
- August (old)
- August (new)
- September (9/02/80)
- September (old)
- September (new)
- October (old)
- October (new)

JUNE

PERIPHYTON BIOMASS BENCH SHEET
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 062780
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

LOG #	STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)
19-132	1A	.4430	.1007
20-132	1B	.3733	.1715
21-132	1C	.5130	.1780
22-132	2A	.1980	.1524
23-132	2B	.1524	.1036
24-132	2C	.1386	.0901
25-132	3A	.3347	.0970
26-132	3B	.4343	.0676
27-132	3C	.5193	.1155

AUGUST (old)

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                PERIPHYTON BIOMASS BENCH SHEET
              CATHEDRAL BLUFFS SHALE OIL COMPANY
              ----------------------------------

SAMPLE COLLECTION DATE - 080190
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

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LOG #      STATION-REP      DRY WEIGHT (GM)      ASH WEIGHT (GM)

-------------------------------------------------------------------------

40-132         1A                .4690                .4349
41-132         1B                .4941                .4670
42-132         1C                .4671                .4388
46-132         2A                .5161                .4819
47-132         2B                .4456                .4173
48-132         2C                .4733                .4417
52-132         3A                .1358                .0926
53-132         3B                .0532                .0368
54-132         3C                .0745                .0581

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AUGUST (new)

PERIPHYTON BIOMASS BENCH SHEET
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 080180
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

LOG #	STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)
37-132	1A	.3652	.3499
38-132	1B	.4519	.4081
39-132	1C	.4129	.3767
43-132	2A	.5288	.4737
44-132	2B	.5304	.4716
45-132	2C	.6067	.5474
49-132	3A	.4232	.3890
50-132	3B	.3391	.3052
51-132	3C	.3539	.3252

SEPTEMBER (9/02/80)

PERIPHYTON BIOMASS BENCH SHEET
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 090290
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

LOG #	STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)
100-132	1A	.0880	.0758
101-132	1B	.1526	.1290
102-132	1C	.0606	.0506
103-132	2A	.1045	.0870
104-132	2B	.0956	.0791
105-132	2C	.1013	.0867
106-132	3A	.1960	.1697
107-132	3B	.1505	.1305
108-132	3C	.1503	.1323

SEPTEMBER (old)

PERIPHYTON BIOMASS BENCH SHEET
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 092980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

LOG #	STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)
134-132	1B	.0340	.0295
135-132	1C	.0344	.0307
136-132	2A	.2972	.2763
137-132	2B	.1197	.1024
138-132	2C	.2671	.2501
139-132	3A	.0933	.0890
140A-132	3B	.1026	.0884
140B-132	3C	.0901	.0856

SEPTEMBER (new)

PERIPHYTON BIOMASS BENCH SHEET
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 092980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

LOG #	STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)
124-132	1A	.0177	.0160
125-132	1B	.0232	.0142
126-132	1C	.0320	.0230
127-132	2A	.0879	.0731
128-132	2B	.0745	.0613
129-132	2C	.0736	.0585
130-132	3A	.0201	.0187
131-132	3B	.0224	.0214
132-132	3C	.0208	.0194

OCTOBER(old)

PERIPHYTON BIOMASS BENCH SHEET
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 102980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - OLD

LOG #	STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)
177-132	1A	.0679	.0590
178-132	1B	.0911	.0819
179-132	1C	.1084	.0930
180-132	2A	.5284	.4970
181-132	2B	.4521	.4252
182-132	2C	.4004	.3770
183-132	3A	.2383	.2230
184-132	3B	.2499	.2314
185-132	3C	.1540	.1406

OCTOBER (new)

PERIPHYTON BIOMASS BENCH SHEET
CATHEDRAL BLUFFS SHALE OIL COMPANY

SAMPLE COLLECTION DATE - 102980
ANALYST - RD
AREA SCRAPED - 37.5 CM2
SAMPLER USED - NEW

LOG #	STATION-REP	DRY WEIGHT (GM)	ASH WEIGHT (GM)
168-132	1A	.1268	.1075
169-132	1B	.0966	.0848
170-132	1C	.1160	.0988
171-132	2A	.5119	.4703
172-132	2B	.5703	.5231
173-132	2C	.5811	.5341
174-132	3A	.1946	.1726
175-132	3B	.1843	.1630
176-132	3C	.3853	.3474

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2.5.3 Terrestrial Vegetation Studies

Data results for vegetations studies will be reported in the next data report.

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2.5.4 Threatened and Endangered Species

No additional studies were conducted during this reporting period.

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2.5.5 Revegetation

Study results for 1981 will appear in the next data report.

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2.5.6 Soil Survey and Productivity Assessment

No additional studies were conducted during this report period.

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2.5.7 Dendrochronology and Dendroclimatology Studies

No additional studies were conducted during this report period.

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2.6 Archaeological Studies

No additional studies were conducted during this report period.

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2.7 Industrial Health and Safety

Periodic reports on Health and Safety Activities have been requested by the Deputy Conservation Manager. Accident Frequency and Mine Gas Monitoring summaries for this reporting period (December 1980 - May 1981) are presented in this section.

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2.7.1 Accident Frequency

Data presented in this section are provided by the Health and Safety Department. Table 2.7.1-1* presents the basic man hours, accident and injury rate data for the period from January, 1980 through May 1981. MSHA inspection reports and citations are on file and are available upon request.

*IR = Injury rate
RA = Reported accidents
LTA = Lost time accidents

Table 2.7.1-1

Manhours and Accident Data for Tract C-b

1980	OCCIDENTAL									CONTRACTOR									OXY & CONTR.								
	MAN HOURS			ACCIDENTS				I.R.		MAN HOURS			ACCIDENTS				I.R.		MAN HOURS			ACCIDENTS				I.R.	
	MONTH	Y.T.D.	QRTR.	mon RA	yld RA	mon LTA	yld LTA	mon IR	yld IR	MONTH	Y.T.D.	QRTR.	mon RA	yld RA	mon LTA	yld LTA	mon IR	yld IR	MONTH	Y.T.D.	QRTR.	mon RA	yld RA	mon LTA	yld LTA	mon IR	yld IR
JAN.	6,349	6,349		1	1	1	1	31.5		50,583			1	1	1	1	3.9		56,932			2	2	2	2	7.03	
FEB.	10,720	17,069		0	1	0	1	0	171	45,865	96,336		1	2	0	1	4.36	4.15	56,585	113,405		1	3	0	2	3.53	5.29
MAR	10,020.5	27,089.5	27,089.5	0	1	0	1	0	7.39	47,102	143,438	143,438	2	4	2	3	3.49	5.58	57,122.5	170527.5	170,527.5	2	5	2	4	7.00	5.86
APR	12,002	39,091.5		0	1	0	1	0	5.12	54,246	197,684		1	5	1	4	3.69	5.06	66,248	236,775.5		1	6	1	5	3.02	4.22
MAY	14,924.5	54,016		0	1	0	1	0	3.70	43,869	241,553		1	6	0	4	4.56	4.97	58,793.5	295,569		1	7	0	5	3.40	4.74
JUN	15,313.5	69,329.5	69329.5	1	2	0	1	13.06	5.77	46,275.5	287,828.5	287,828.5	1	7	1	5	4.32	4.86	61,589	357,158	186,630.5	2	9	1	6	6.49	5.04
JUL	17,725.5	87055		1	3	1	2	11.28	6.89	53,665	341,493.5		2	9	1	6	7.45	5.27	71,390.5	428,548.5		3	12	2	8	8.40	5.60
AUG	20,942	107,997		0	3	0	2	0	5.6	47,914	389,407.5		1	10	1	7	4.17	5.14	68,856	497,404.5		1	13	1	9	2.90	5.23
SEP	18,219.5	126216.5	126216.5	0	3	0	2	0	4.75	48,615.5	438,023	438,023	1	11	0	7	4.11	5.02	66,835	564,239.5	207,081.5	1	14	0	9	2.99	4.96
OCT	19480.5	145697		0	3	0	2	0	4.12	58,866.5	496,889.5		5	16	5	12	16.99	6.44	78,347	642,586.5		5	19	5	14	12.76	5.91
NOV	19364	165061		0	5	0	2	0	2.4	38,354	535,243.5		1	17		13	5.21	6.35	57,718	700,304.5		1	20	1	15	3.47	5.71
DEC	17,557	182618	182618	0	3	0	1	0	3.29	66,009.5	601,253	601,253	0	17	0	13	0	5.65	83,566	783,870.5		0	20	0	15	0	5.10

Table 2.7.1-1 (cont.)

1980	OCCIDENTAL									CONTRACTOR									OXY & CONTR.								
	MAN HOURS			ACCIDENTS				I.R.		MAN HOURS			ACCIDENTS				I.R.		MAN HOURS			ACCIDENTS				I.R.	
	MONTH	Y.T.D.	QRTR.	mon RA	yld RA	mon LTA	yld LTA	mon IR	yld IR	MONTH	Y.T.D.	QRTR.	mon RA	yld RA	mon LTA	yld LTA	mon IR	yld IR	MONTH	Y.T.D.	QRTR.	mon RA	yld RA	mon LTA	yld LTA	mon IR	yld IR
JAN.	16,835	16,835		0	0	0	0	0	0	48,050.5	48,050.5		2	2	2	2	8.32	8.32	64,885.5	64,8 5.5		2	2	2	2	6.16	6.16
										G 38,864 0 9,186.5			2 0	2 0	2 0	2 0											
FEB.	18,049.5	34,884.5		0	0	0	0	0	0	G 40,002 0 8,399.5			1 1	3 1	1 1	3 1			66,451	131,336.5		2	4	2	4	6.02	6.09
										48,401.5	96,452		2	4	2	4	8.26	8.29									
MAR	17,643.5	52,528		1	1	1	1	11.34	3.81	50,744	147,196		3	7	3	7	11.82	9.51	68,387.5	199,724		4	8	4	8	11.70	8.01
			52,528							G 40,128 0 10,616		147,196	1 2	4 3	1 2	4 3					199,724						
APR	18,550	71,078		0	1	0	1	0	2.81	59,981	207,177		3	10			10.00	9.65	78,531	273,255		3	11			7.64	7.91
										G 47,569 0 12,412			3 0	7 3	3 2	7 3											
MAY	17,036	88,164		0	1	0	1	0	2.27	G 37,219 0 15,233.5	259,629.5		2 1	9 4	2 1	9 4			69,538.5	347,793.5		3	14			8.63	8.05
										52,452.5			3	13			11.44	10.01									
JUN																											
JUL																											
AUG																											
SEP																											
OCT																											
NOV																											
DEC																											

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2.7.2 Mine Gas Monitoring

Mine gas samples are required at least once every 24 hours from the exhaust air of each shaft. Table 2.7.2-1 presents weekly summarized data for methane gas analysis taken from the Ventilation/Escape and Production/Service Shafts.

TABLE 2.7.2-1

V/E AND PRODUCTION/SERVICE SHAFTS
GAS ANALYSIS WEEKLY SUMMARY

DATE	V/E Shaft	Production/Service Shaft
3/20/80 - 3/26/80	.028%	0%
3/27/80 - 4/02/80	.037	0
4/03/80 - 4/09/80	0	0
4/10/80 - 4/16/80	.017	0
4/17/80 - 4/23/80	0	0
4/24/80 - 4/30/80	0	0
5/01/80 - 5/07/80	0	0
5/08/80 - 5/14/80	0	0
5/15/80 - 5/21/80	.004	0
5/22/80 - 5/29/80	.010	0
5/29/80 - 6/04/80	0	0
6/05/80 - 6/11/80	0	0
6/12/80 - 6/18/80	.009	0
6/19/80 - 6/25/80	0	0
6/26/80 - 7/02/80	0	0
7/03/80 - 7/09/80	0	0
7/10/80 - 7/16/80	.003	0
7/17/80 - 7/23/80	.017	0
7/24/80 - 7/30/80	.014	0
7/31/80 - 8/06/80	.023	.004
8/07/80 - 8/13/80	.023	.006
8/14/80 - 8/20/80	.054	0
8/21/80 - 8/27/80	.040	.006
8/28/80 - 9/03/80	.039	0
9/04/80 - 9/10/80	.044	0
9/11/80 - 9/17/80	.038	0
9/18/80 - 9/24/80	.024	.015
9/25/80 - 10/01/80	.054	0
10/02/80 - 10/08/80	.107	0
10/09/80 - 10/15/80	.093	0
10/16/80 - 10/22/80	.061	0
10/23/80 - 10/29/80	.058	0
10/30/80 - 11/05/80	.059	0
11/06/80 - 11/12/80	.088	0
11/13/80 - 11/19/80	.120	0
11/20/80 - 11/26/80	.158	0
11/27/80 - 12/03/80	.124	.008
12/04/80 - 12/10/80	.148	.004
12/11/80 - 12/17/80	.118	0
12/18/80 - 12/24/80	.087	0
12/25/80 - 12/31/80	.092	.015
12/29/80 - 1/02/81	.085	.015
1/05/81 - 1/09/81	.103	.008
1/09/81 - 1/15/81	.115	.003
1/22/81 - 1/29/81	.083	.013
1/30/81 - 2/05/81	.1	0
2/06/81 - 2/12/81	.065	.015

TABLE 2.7.2-1 (Cont)

V/E AND PRODUCTION/SERVICE SHAFTS
GAS ANALYSIS WEEKLY SUMMARY

DATE	V/E Shaft	Production/Service Shaft
2/12/81 - 2/17/81	.082	.020
2/19/81 - 2/25/81	.093	.011
2/26/81 - 3/04/81	.088	.020
3/05/81 - 3/10/81	.104	.019
3/11/81 - 3/18/81	.104	.003
3/20/81 - 3/26/81	.099	.001
3/26/81 - 4/01/81	.108	.002
4/03/81 - 4/08/81	.089	0
4/08/81 - 4/14/81	.107	.003
4/15/81 - 4/22/81	.106	.002
4/23/81 - 4/28/81	.090	.007
4/30/81 - 5/06/81	.099	.008
5/07/81 - 5/13/81	.111	0
5/14/81 - 5/19/81	.088	.002
5/20/81 - 5/27/81	.077	.006
5/28/81 - 6/03/81	.107	.007

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3.0 Other Studies

Data were collected in two of the programs within the Other Studies categories for December, 1980 through May, 1981. These programs were: Micro-environmental Studies and Traffic Load Studies. The remaining programs in the Other Studies categories were inactive during this report period.

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3.1 Fish and Wildlife Management Plan

No additional studies were made during this report period.

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3.2 Micro-Climate Program

Introduction

Mirco-climatic parameters for December, 1980 - May, 1981 include the following: Maximum and minimum temperature at surface and at one meter, (Table 3.2-1). Totals for precipitation, snow depth and snow moisture, (Table 3.2-2).

Scope

Studies of micro-climatic parameters on the C-b Tract provide data that are useful in assessing changes in vegetation production and structure, animal populations, or animal activity patterns, and may also be correlated with changes in functional components of the C-b ecosystem that may occure as a result of shale oil development. Five micro-climatic stations are located in developmental sites and five in control sites:

The following sites are monitored:

MC Station Locations

BC01	Chained Pinyon-Juniper Rangeland, Veg. Plot 1
BC02	Chained Pinyon-Juniper Rangeland, Veg. Plot 2
BC03	Plateau Sagebrush, Veg. Plot 3
BC04	Valley Bottom Sagebrush, Veg. Plot 4
BC05	Pinyon-Juniper Woodland, Veg. Plot 5
BC06	Pinyon-Juniper Woodland, Veg. Plot 6
BC07	Chained Pinyon-Juniper Rangeland (Animal Trapping Transect)
BC08	Bunchgrass Community, South-facing Slope
BC09	Valley Bottom Sagebrush, Mouth of Sorghum Gulch
BC13	Mixed Mountain Shrubland, North-facing Slope

Temperature readings consist of maximum and minimum readings for two-week periods. Precipitation is measured only during the growing season, March through October. Therefore, precipitation data from meteorology stations AB20 and AB23 are utilized for winter-month readings (November-February) for valley and pinyon-juniper microclimate stations. Snow measurements are obtained approximately from November-February.

Values indicated as a 999.9 in the following tables represent a blank field. The maximum and minimum temperatures are reported in degrees C. The data for precipitation, snow depth, and snow moisture are reported in centimeters.

Table 3.2-1

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC01	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-14.0	13.0	-24.0
				14.0	-22.0	-1.0	-21.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				6.0	-18.0	10.0	-18.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				5.0	-14.0	7.0	-26.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	930.0	12.0	-19.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-14.0	11.0	-15.0
			31	11.0	-22.0	12.0	-20.0
		4	14	11.0	-11.0	15.0	-12.0
			30	930.0 *	2.0	31.0	-8.0
		5	15	930.0 *	-1.0	25.0	-3.0
			30	28.0	-2.0	32.0	-4.0
		6	16	33.0	-3.0	34.0	-1.0
			30	35.0	-17.0	39.0	1.0
		7	14	34.0	-10.0	40.0	-5.0
			31	36.0	4.0	47.0	4.0
		8	15	31.0	12.0	41.0	2.0
			29	30.0	2.0	37.0	-2.0
		9	15	28.0	7.0	38.0	-4.0

* (IM) Instrument Malfunction

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
8C01	80	9	29	28.0	2.0	34.0	-2.0
		10	15	26.0	.0	30.0	-4.0
			31	19.0	-9.0	19.0	-14.0
		11	14	18.0	-7.0	22.0	-7.0
		12	1	5.0	-17.0	12.0	-19.0
			15	12.0	-15.0	15.0	-15.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	16.0	-6.0	17.0	-10.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	14.0	-10.0	18.0	-17.0
			30	930.0 *	930.0 *	14.0	-16.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-8.0	12.0	-22.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-6.0	22.0	-14.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-11.0	17.0	-12.0
			31	999.9	999.9	999.9	999.9

* (IM)

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC01	81	3	31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				5.0	-14.0	19.0	-14.0
		4	15	20.0	-12.0	30.0	-16.0
			30	23.0	-1.0	31.0	-5.0
		5	15	27.0	-4.0	33.0	-6.0
			29	21.0	1.0	30.5	-2.0
BC02	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				11.0	-21.0	11.0	-17.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-21.0	8.0	-20.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-28.0	6.0	-23.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-17.0	12.0	-18.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-13.0	9.0	-17.0
			31	11.0	-16.0	13.0	-22.0
		4	14	15.0	-11.0	20.0	-15.0
			30	22.0	-2.0	28.0	9.0
		5	15	16.0	-3.0	27.0	-4.0

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC02	80	5	30	930.0 *	-1.0	34.0	-7.0
		6	16	28.0	-1.0	37.0	-4.0
			30	33.0	-4.0	39.0	1.0
		7	14	30.0	-7.0	39.0	-4.0
			31	33.0	7.0	41.0	-2.0
		8	15	32.0	11.0	42.0	2.0
			29	27.0	5.0	36.0	-3.0
		9	15	31.0	3.0	40.0	-4.0
			29	26.0	-4.0	31.0	-7.0
		10	15	25.0	.0	36.0	-5.0
			31	16.0	-12.0	18.0	-15.0
		11	14	18.0	-7.0	23.0	-10.0
		12	1	11.0	-20.0	12.0	-20.0
			15	11.0	-15.0	14.0	-18.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	15.0	-9.0	13.0	-11.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	14.0	-14.0	16.0	-16.0
			30	6.0	-14.0	12.0	-18.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				8.0	-22.0	9.0	-25.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

*(IM)

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMX1M	TEMPMN1M	SRFTPMAX	SRFTPMIN
BC02	81	2	27	14.0	-16.0	15.0	-15.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				14.0	-11.0	15.0	-19.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-13.0	18.0	-16.0
		4	15	23.0	-8.0	27.0	-18.0
			30	26.0	-2.0	33.0	-3.0
		5	15	23.0	-3.0	33.0	-8.0
			29	24.0	1.0	29.0	2.0
BC03	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				5.0	-17.0	10.0	-20.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-16.0	6.0	-16.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				2.0	-14.0	6.0	-25.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-9.0	5.0	-5.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
RC03	80	3	14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				-5.0	-10.0	5.0	-3.0
			31	10.0	-21.0	8.0	-14.0
		4	14	13.0	-11.0	12.0	-6.0
			30	16.0	-3.0	22.0	3.0
		5	15	14.0	-2.0	18.0	-1.0
			30	20.0	-1.0	28.0	-1.0
		6	16	24.0	.0	32.0	.0
			30	31.0	1.0	35.0	-4.0
		7	14	22.0	-9.0	30.0	-13.0
			31	27.0	10.0	37.0	7.0
		8	15	26.0	11.0	33.0	4.0
			29	28.0	1.0	31.0	.0
		9	15	35.0	8.0	40.0	8.0
			29	34.0	3.0	31.0	-5.0
		10	15	930.0 *	4.0	25.0	-2.0
			31	16.0	-11.0	22.0	945.0 (1)
		11	14	15.0	-8.0	24.0	-4.0
		12	1	3.0	-10.0	16.0	-14.0
			15	10.0	-14.0	19.0	-12.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	13.0	-6.0	24.0	-8.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	8.0	-11.0	23.0	-9.0
			30	8.0	-18.0	20.0	-12.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

* (IM)
(1) Weather Related Malfunction

Table 3.2-1 (cont.)

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                            MICROCLIMATE DATA

 AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

                         JANUARY 1980 - MAY 1981

STATION   YEAR  MONTH   DAY   TEMPMXIM    TEMPMNIM    SRFTPMAX    SRFTPMIN
-------   ----  -----   ---   --------    --------    --------    --------
BC03       81     2     13     999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                                 7.0       -21.0        18.0       -18.0
                        27     999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                                 7.0       -10.0        22.0       -11.0
                  3     16     999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                                13.0        -9.0        24.0        -7.0
                        31     999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                                14.0       -12.0        15.0       -10.0
                  4     15      22.0        -2.0        33.0        -8.0
                        30      25.0         9.0        36.0        -1.0
                  5     15      27.0        -1.0        38.0         1.0
                        29      24.0         4.0        35.0         6.0
BC04       80     1      3     999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                  2      4     999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                                10.0       -25.0         5.0       -19.0
                        15     999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                               999.9       999.9       999.9       999.9
                                 9.0       -23.0         6.0       -26.0
                  3      3     999.9       999.9       999.9       999.9
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Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC04	80	3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				14.0	-17.0	6.0	-15.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-16.0	10.0	-16.0
			31	12.0	-25.0	10.0	-23.0
		4	14	17.0	-16.0	19.0	-14.0
			30	26.0	-10.0	930.0	-10.0
		5	15	21.0	-5.0	15.0	-5.0
			30	30.0	-9.0	26.0	-8.0
		6	16	34.0	-6.0	36.0	-5.0
			30	36.0	3.0	35.0	3.0
		7	14	35.0	.0	29.0	.0
			31	38.0	3.0	24.0	2.0
		8	15	32.0	1.0	34.0	.0
			29	35.0	-3.0	31.0	-3.0
		9	15	37.0	5.0	26.0	5.0
			29	31.0	2.0	37.0	4.0
		10	15	31.0	-6.0	930.0	-7.0
			31	18.0	-14.0	21.0	-13.0
		11	14	22.0	-8.0	24.0	-6.0
		12	1	12.0	-21.0	12.0	-18.0
			15	15.0	-19.0	17.0	-17.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	16.0	-12.0	15.0	-9.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	13.0	-17.0	950.0	-14.0
			30	14.0	-18.0	14.0	-16.0
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR_AND SURFACE_TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMX1M	TEMPMN1M	SRFTPMAX	SRFTPMIN
BC04	81	1	30	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				11.0	-25.0	10.0	-27.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				15.0	-16.0	18.0	-14.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				15.0	-14.0	16.0	-11.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				17.0	-18.0	22.0	-15.0
		4	15	23.0	-19.0	27.0	-15.0
			30	28.0	-9.0	35.0	-5.0
		5	15	29.0	-8.5	34.0	-4.0
			29	26.0	2.0	28.0	-1.0
BC05	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-20.0	12.0	-12.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC05	80	2	4	6.0	-23.0	7.0	-16.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				7.0	-26.0	8.0	-21.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-16.0	11.0	-11.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				6.0	-15.0	10.0	-12.0
			31	10.0	-20.0	11.0	-17.0
		4	14	15.0	-14.0	13.0	-10.0
			30	22.0	-8.0	25.0	-2.0
		5	15	22.0	-5.0	24.0	-2.0
			30	28.0	-6.0	29.0	-2.0
		6	16	32.0	-2.0	37.0	-3.0
			30	26.0	-16.0	41.0	-17.0
		7	14	34.0	-4.0	39.0	-9.0
			31	35.0	4.0	38.0	7.0
		8	15	33.0	2.0	39.0	6.0
			29	31.0	-1.0	34.0	2.0
		9	15	37.0	9.0	38.0	8.0
			29	25.0	-2.0	28.0	2.5
		10	15	23.0	-4.0	26.0	-1.0
			31	13.0	-14.0	17.0	-11.0
		11	14	17.0	-9.0	21.0	-5.0
		12	1	8.0	-20.0	12.0	-16.0
			15	10.0	-20.0	14.0	-14.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	13.0	-11.0	16.0	-6.0

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC05	80	12	31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	10.0	-16.0	13.0	-12.0
			30	10.0	-17.0	13.0	-14.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				6.0	-12.0	7.0	-20.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-14.0	15.0	-10.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-13.0	12.0	-9.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				13.0	-16.0	17.0	-13.0
		4	15	20.0	-16.0	24.0	-13.0
			30	27.0	-7.0	31.0	-1.0
		5	15	25.0	-8.0	29.0	-3.0
			29	29.0	2.0	25.0	2.5
BC06	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

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MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMX1M	TEMPMN1M	SRFTPMAX	SRFTPMIN
BC06	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-19.0	9.0	-18.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-21.0	7.0	-16.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-24.0	7.0	-23.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				14.0	-15.0	8.0	-7.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-11.0	6.0	-4.0
			31	9.0	-17.0	10.0	-17.0
		4	14	13.0	-14.0	13.0	-12.0
			30	21.0	-5.0	26.0	-2.0
		5	15	15.0	-4.0	23.0	.0
			30	24.0	-3.0	34.0	-3.0
		6	16	31.0	-2.0	38.0	.0
			30	33.0	-4.0	41.0	5.0
		7	14	29.0	-12.0	38.0	-11.0
			31	43.0	930.0	50.0	-2.0
		8	15	37.0	2.0	40.0	10.0
			29	31.0	-2.0	36.0	2.0
		9	15	31.0	9.0	38.0	6.0
			29	27.0	-2.0	33.0	-3.0
		10	15	24.0	-5.0	31.0	1.0
			31	15.0	-16.0	20.0	-11.0
		11	14	18.0	-10.0	22.0	-6.0

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMAXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC06	80	12	1	9.0	-20.0	1.0	-17.0
			15	10.0	-17.0	13.0	-15.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	15.0	-18.0	14.0	-7.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	10.0	-16.0	12.0	-13.0
			30	10.0	-18.0	13.0	-15.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				6.0	-25.0	12.0	-23.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-15.0	16.0	-15.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				11.0	-15.0	14.0	-10.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMX1M	TEMPMN1M	SRFTPMAX	SRFTPMIN
BC06	81	3	31	14.0	-17.0	17.0	-15.0
		4	15	23.0	-16.0	27.0	-13.0
			30	26.0	-6.0	32.0	-2.0
		5	15	28.0	-9.0	31.0	-4.0
			29	28.5	.5	27.0	1.5
BC07	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-21.0	14.0	-24.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-22.0	10.0	-19.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				8.0	-25.0	20.0	-28.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-16.0	19.0	-18.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-15.0	10.0	-16.0
			31	10.0	-20.0	13.0	-22.0
		4	14	14.0	-14.0	21.0	-14.0
			30	24.0	-6.0	26.0	-8.0
		5	15	20.0	-5.0	24.0	-5.0
			30	22.0	-3.0	30.0	-7.0
		6	16	27.0	-2.0	34.0	-3.0
			30	34.0	-1.0	36.0	.0
		7	14	33.0	-5.0	33.0	-4.0

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPRATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC07	80	7	31	38.0	5.0	37.0	2.0
		8	15	33.0	4.0	39.0	1.0
			29	26.0	1.0	40.0	-3.0
		9	15	31.0	9.0	36.0	7.0
			29	26.0	-1.0	29.0	-3.0
		10	15	26.0	-5.0	30.0	-6.0
			31	18.0	-14.0	23.0	-16.0
		11	14	16.0	-8.0	24.0	-8.0
		12	1	4.0	-16.0	15.0	-19.0
			15	12.0	-17.0	13.0	-19.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	14.0	-10.0	18.0	-11.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	14.0	-16.0	18.0	-17.0
			30	6.0	-16.0	17.0	-18.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	12	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				8.0	-23.0	10.0	-25.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				13.0	-15.0	16.0	-15.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMX1M	TEMPMN1M	SRFTPMAX	SRFTPMIN
BC07	81	3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-12.0	16.0	-14.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-15.0	15.0	-14.0
		4	15	20.0	-8.0	23.0	-15.0
			30	27.0	-4.0	31.0	-6.0
		5	15	17.0	-5.0	31.0	-3.0
			29	26.0	4.0	26.0	2.0
BC08	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-21.0	17.0	-19.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-25.0	16.0	-22.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				7.0	-23.0	16.0	-19.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				985.0	965.0	20.0	-6.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				499.9	999.9	999.9	999.9
				14.0	930.0	16.0	-11.0

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC08	80	3	31	15.0	-14.0	12.0	-16.0
		4	14	15.0	-10.0	17.0	-11.0
			30	930.0 *	-4.0	20.0	6.0
		5	15	16.0	2.0	930.0	-1.0
			30	24.0	5.0	26.0	2.0
		6	16	26.0	3.0	32.0	1.0
			30	27.0	-25.0	37.0	-15.0
		7	14	29.0	-10.0	33.0	-7.0
			31	35.0	9.0	40.0	5.0
		8	15	36.0	11.0	39.0	5.0
			29	32.0	930.0	34.0	.0
		9	15	39.0	4.0	31.0	.0
			29	30.0	-3.0	33.0	1.0
		10	15	32.0	-4.0	30.0	2.0
			31	20.0	-11.0	21.0	-7.0
		11	14	24.0	-6.0	22.0	-2.0
		12	1	16.0	-15.0	13.0	-9.0
			15	15.0	-14.0	17.0	-14.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	18.0	-10.0	20.0	-7.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	30	13.0	-14.0	14.0	-10.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				13.0	-20.0	18.0	-15.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

* (IM)

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC08	81	2	27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				17.0	-13.0	20.0	-11.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				16.0	-9.0	29.0	-3.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				17.0	-13.0	20.0	-13.0
		4	15	22.0	-10.0	24.0	-3.0
			30	27.0	-4.0	31.0	.0
		5	15	26.0	-4.0	31.0	-3.0
			29	24.0	1.5	26.0	15.0
BC09	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-27.0	12.0	-24.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				11.0	-21.0	11.0	-32.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				6.0	-29.0	11.0	-26.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC09	80	3	3	15.0	-23.0	12.0	-19.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-20.0	14.0	-16.0
			31	11.0	-26.0	11.0	-22.0
		4	14	18.0	-18.0	19.0	-14.0
			30	24.0	-11.0	33.0	-10.0
		5	15	19.0	-8.0	15.0	-4.0
			30	25.0	-11.0	33.0	-7.0
		6	16	32.0	-8.0	37.0	-5.0
			30	34.0	5.0	40.0	2.0
		7	14	30.0	-4.0	39.0	-2.0
			31	34.0	-2.0	44.0	3.0
		8	15	36.0	6.0	42.0	1.0
			29	31.0	-4.0	39.0	-3.0
		9	15	31.0	5.0	38.0	4.0
			29	28.0	-12.0	36.0	-8.0
		10	15	26.0	-9.0	33.0	-8.0
			31	18.0	-17.0	23.0	-13.0
		11	14	20.0	-12.0	18.0	-10.0
		12	1	13.0	-22.0	16.0	-19.0
			15	13.0	-21.0	17.0	-17.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	15.0	-16.0	20.0	-11.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
	81	1	15	12.0	-23.0	12.0	-18.0
			30	14.0	-23.0	18.0	-14.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC09	81	2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				10.0	-30.0	12.0	-25.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				14.0	-18.0	17.0	-14.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				13.0	-16.0	11.0	-13.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				16.0	-22.0	21.0	-18.0
		4	15	20.0	-21.0	26.0	-17.0
			30	25.0	-9.0	30.0	-7.0
		5	15	25.0	-10.0	35.0	-6.0
			29	25.0	-5.5	32.0	-3.0
BC13	80	1	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				9.0	-17.0	9.0	-19.0
		2	4	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				8.0	-18.0	7.0	-16.0
			15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR AND SURFACE TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC13	80	2	15	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				11.0	-25.0	10.0	-24.0
		3	3	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				15.0	-14.0	13.0	-15.0
			14	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				13.0	-4.0	12.0	-11.0
			31	10.0	-14.0	12.0	-14.0
		4	14	15.0	-11.0	11.0	-12.0
			30	22.0	-5.0	26.0	3.0
		5	15	18.0	-3.0	24.0	-1.0
			30	36.0	-5.0	29.0	-6.0
		6	16	30.0	-1.0	39.0	-2.0
			30	33.0	-2.0	42.0	-1.0
		7	14	23.0	-10.0	40.0	-7.0
			31	34.0	6.0	40.0	7.0
		8	15	25.0	12.0	42.0	6.0
			29	28.0	4.0	38.0	4.0
		9	15	32.0	.0	35.0	2.0
			29	25.0	2.0	34.0	1.0
		10	15	22.0	-3.0	31.0	1.0
			31	17.0	-14.0	19.0	-12.0
		11	14	20.0	-7.0	21.0	-6.0
		12	1	10.0	-20.0	13.0	-19.0
			15	13.0	-17.0	13.0	-16.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
			31	13.0	-7.0	13.0	-10.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9

Table 3.2-1 (cont.)

MICROCLIMATE DATA

AIR_AND SURFACE_TEMPERATURES OF MAXIMUM AND MINIMUM VALUES (DEGC)

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	TEMPMXIM	TEMPMNIM	SRFTPMAX	SRFTPMIN
BC13	80	12	31	999.9	999.9	999.9	999.9
	81	1	15	12.0	-16.0	10.0	-12.0
			30	12.0	-17.0	12.0	-17.0
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
		2	13	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				7.0	-11.0	11.0	-24.0
			27	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				15.0	-15.0	18.0	-12.0
		3	16	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				12.0	-12.0	14.0	-11.0
			31	999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				999.9	999.9	999.9	999.9
				15.0	-14.0	20.0	-15.0
		4	15	21.0	-14.0	26.0	-12.0
			30	25.0	-3.0	32.0	-1.0
		5	15	25.0	-6.0	32.0	-3.0
			29	23.0	.0	28.0	3.0

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Table 3.2-2

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
8C01	80	1	3		30.0	4.0
					32.0	5.0
					26.0	3.0
					32.0	4.0
					26.0	4.0
					29.2	4.0
					30.4	4.4
		2	4		26.0	7.0
					19.0	4.0
					32.0	8.0
					27.0	5.0
					25.0	6.0
					25.8	6.0
			15		20.0	3.0
					16.0	3.0
					26.0	9.0
					30.0	7.0
					22.0	3.0
					22.8	5.0
		3	3		17.0	5.0
					.0	.0
					25.0	8.0
					14.0	3.0
					14.0	5.0
					14.0	4.2
			14		35.0	9.0
					.0	.0
					24.0	5.0
					12.0	2.0
					26.0	11.0
					19.4	5.4
			31	1.40		
		4	14	.30		
			30	.50		
		5	15	1.35		
			30	.34		
		6	16	.00		
			30	.00		
		7	14	1.45		
			31	.33		
		8	15	.36		
			29	.34		
		9	15	.32		

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
3C01	80	9	29	.08		
		10	15	1.15		
			31	.34		
		11	14	.46		
		12	1	.19		
			15		.4	800.0
					800.0	800.0
					800.0	800.0
					.0	.0
					2.0	.0
					800.0	800.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		2	13		4.0	.0
					.0	.0
					800.0	.0
					800.0	.0
					.0	.0
					.8	.0
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		13.0	3.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC01	81	3	31		10.0	2.0
					12.0	2.0
					10.0	2.0
					11.0	2.0
					11.2	2.2
		4	15	.00		
			30	.14		
		5	15	2.00		
			29	.89		
BC02	80	1	3		28.0	3.0
					30.0	4.0
					30.0	5.0
					23.0	4.0
					27.0	3.0
					27.6	3.6
		2	4		16.0	4.0
					21.0	6.0
					31.0	10.0
					30.0	8.0
					25.0	7.0
					24.6	7.0
			15		15.0	3.0
					28.0	9.0
					26.0	9.0
					25.0	6.0
					20.0	5.0
					23.0	6.4
		3	3		.0	.0
					22.0	5.0
					7.0	1.0
					800.0	800.0
					.0	.0
					5.8	1.2
			14		.0	.0
					20.0	7.0
					6.0	1.0
					.0	.0
					.0	.0
					5.2	1.6
			31	1.10		
		4	14	.33		
			30	.50		
		5	15	1.01		

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
8C02	80	5	30	.34		
		6	16	.00		
			30	.00		
		7	14	1.27		
			31	.36		
		8	15	.26		
			29	.40		
		9	15	.50		
			29	.03		
		10	15	.87		
			31	.34		
		11	14	.56		
		12	1	.17		
			15		.8	.2
					.0	.0
					800.0	800.0
					4.0	1.0
					800.0	800.0
					.0	.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		2	13		.0	.0
					.0	.0
					800.0	.0
					800.0	.0
					.0	.0
					.0	.0
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC02	81	2	27		.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		6.0	1.0
					10.0	2.0
					12.0	2.0
				.00	800.0	.0
				.00	800.0	.0
					9.3	1.7
		4	15	.00		
			30	.00		
		5	15	1.50		
			29	.89		
BC03	80	1	3		30.0	5.0
					34.0	2.0
					34.0	4.0
					33.0	5.0
					30.0	3.0
					32.7	3.8
		2	4		30.0	7.0
					28.0	7.0
					34.0	7.0
					28.0	5.0
					28.0	6.0
					29.6	6.4
			15		26.0	5.0
					30.0	6.0
					30.0	6.0
					30.0	7.0
					28.0	7.0
					28.8	6.2
		3	3		25.0	6.0
					28.0	11.0
					30.0	11.0
					26.0	8.0
					26.0	9.0
					27.0	9.0
			14		30.0	7.0
					40.0	11.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC03	80	3	14		35.0	10.0
					34.0	12.0
					28.0	10.0
					33.4	10.0
			31	2.10		
		4	14	.60		
			30	.51		
		5	15	1.00		
			30	.19		
		6	16	.00		
			30	.00		
		7	14	1.32		
			31	.52		
		8	15	.46		
			29	.38		
		9	15	.40		
			29	.06		
		10	15	1.05		
			31	.39		
		11	14	.56		
		12	1	.17		
			15		.8	.0
					800.0	800.0
					2.0	.0
					.0	.0
					.0	.0
					2.0	.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		2	13		4.0	.0
					14.0	4.0
					10.0	2.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC03	81	2	13		12.0	3.0
					9.0	2.0
					9.8	2.2
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		15.0	3.0
					16.0	2.0
					13.0	2.0
					10.0	1.0
					12.0	2.0
					13.2	2.0
		4	15	.00		
			30	.11		
		5	15	1.52		
			29	.62		
BC04	80	1	3		35.0	5.0
					36.0	4.0
					10.0	800.0
					34.0	7.0
					37.0	[illegible]
		2	4		41.0	[illegible]
					34.0	1.0
					32.0	9.0
					28.0	7.0
					29.0	7.0
					32.8	7.2
			15		24.0	5.0
					26.0	4.0
					800.0	800.0
					32.0	11.0
					20.0	7.0
					20.4	5.4
		3	3		.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC04	80	3	3		12.0	4.0
					.0	.0
					.0	.0
					24.0	9.0
					7.2	2.6
			14		.0	.0
					.0	.0
					.0	.0
					.0	.0
					10.0	2.0
					2.0	.4
			31	1.40		
		4	14	.40		
			30	.51		
		5	15	1.25		
			30	.42		
		6	16	.00		
			30	.00		
		7	14	1.26		
			31	.36		
		8	15	.26		
			29	.34		
		9	15	.60		
			29	.05		
		10	15	.94		
			31	.38		
		11	14	.54		
		12	1	.18		
			15		1.6	.4
					4.0	1.0
					4.0	1.0
					800.0	800.0
					.0	.0
					800.0	800.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC04	81	1	30		.0	.0
					.0	.0
					.0	.0
					.0	.0
		2	13		800.0	.0
					6.0	1.0
					.0	.0
					.0	.0
					10.0	2.0
					3.2	.6
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		10.0	2.0
					8.0	2.0
					12.0	2.0
					8.0	1.0
					6.0	1.0
					8.8	1.6
		4	15	.00		
			30	.11		
		5	15	1.95		
			29	.91		
BC05	80	1	3		30.0	3.0
					20.0	2.0
					6.0	1.0
					800.0	800.0
					28.0	3.0
					16.8	1.8
		2	4		35.0	8.0
					12.0	3.0
					6.0	1.0
					800.0	800.0
					34.0	5.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC05	80	2	4		17.4	3.4
			15		38.0	12.0
					13.0	2.0
					3.0	.0
					.0	.0
					30.0	5.0
					16.8	3.8
		3	3		36.0	11.0
					.0	.0
					.0	.0
					.0	.0
					28.0	8.0
					12.8	3.8
			14		40.0	14.0
					.0	.0
					.0	.0
					.0	.0
					34.0	11.0
					14.8	5.0
			31	1.75		
		4	14	.30		
			30	.32		
		5	15	.73		
			30	.26		
		6	16	.00		
			30	.00		
		7	14	.71		
			31	.12		
		8	15	.34		
			29	.24		
		9	15	.23		
			29	.08		
		10	15	.72		
			31	.35		
		11	14	.31		
		12	1	.15		
			15		.4	.0
					2.0	.0
					.0	.0
					.0	.0
					.0	.0
					800.0	800.0
			31		.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC05	80	12	31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		2	13		10.0	2.0
					6.0	1.0
					.0	.0
					.0	.0
					13.0	3.0
					5.8	1.2
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		11.0	2.0
				.00	800.0	.0
					3.0	1.0
				.00	800.0	.0
					8.0	2.0
					7.3	1.7
		4	15	.00		
			30	.00		
		5	15	1.27		
			29	.38		
BC06	80	1	3		24.0	3.0
					29.0	3.0
					36.0	5.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC06	80	1	3		36.0	5.0
					28.0	3.0
					30.6	3.8
		2	4		25.0	6.0
					42.0	9.0
					32.0	8.0
					42.0	11.0
					35.0	10.0
					35.2	8.8
			15		22.0	5.0
					40.0	9.0
					32.0	7.0
					38.0	10.0
					32.0	7.0
					32.8	7.6
		3	3		20.0	7.0
					35.0	9.0
					29.0	9.0
					40.0	13.0
					21.0	8.0
					29.0	9.2
			14		.0	.0
					32.0	11.0
					40.0	10.0
					42.0	15.0
					30.0	12.0
					28.8	9.6
			31	.78		
		4	14	.50		
			30	.50		
		5	15	.95		
			30	.25		
		6	16	.00		
			30	.00		
		7	14	1.28		
			31	.21		
		8	15	.58		
			29	.36		
		9	15	.30		
			29	.08		
		10	15	.88		
			31	.42		
		11	14	.50		

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC06	80	12	1	16		
			15		1.6	.0
					800.0	800.0
					2.0	.0
					4.0	.0
					2.0	.0
					.0	.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		2	13		800.0	.0
					14.0	3.0
					16.0	3.0
					10.0	3.0
					7.0	1.0
					9.4	2.0
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31	.00	800.0	.0
					10.0	1.0
					10.0	1.0
					10.0	1.0
					10.0	1.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC06	81	3	31		10.0	1.0
		4	15	.00		
			30	.06		
		5	15	1.80		
			29	.61		
BC07	80	1	3		32.0	5.0
					26.0	5.0
					28.0	5.0
					28.0	6.0
					40.0	8.0
					30.8	5.8
		2	4		24.0	4.0
					26.0	7.0
					16.0	4.0
					20.0	4.0
					34.0	8.0
					24.0	5.4
			15		20.0	5.0
					22.0	5.0
					19.0	4.0
					32.0	11.0
					38.0	11.0
					26.2	7.2
		3	3		6.0	1.0
					19.0	7.0
					14.0	4.0
					27.0	9.0
					16.0	6.0
					16.4	5.4
			14		18.0	5.0
					21.0	5.0
					16.0	3.0
					29.0	11.0
					18.0	3.0
					20.4	5.4
			31	1.45		
		4	14	.34		
			30	.42		
		5	15	.98		
			30	.32		
		6	16	.00		
			30	.00		
		7	14	1.52		

Table 3.2-2 (cont.)

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                    MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

                JANUARY 1980 - MAY 1981

STATION   YEAR   MONTH   DAY   PRECIP   SNODPTH   SNOMOIST
-------   ----   -----   ---   ------   -------   --------
8C07      80      7      31       .24
                  8      15       .24
                         29     94.50
                  9      15       .42
                         29       .04
                 10      15       .80
                         31       .35
                 11      14       .44
                 12       1       .17
                         15                 .0        .0
                                            .0        .0
                                         800.0     800.0
                                            .0        .0
                                            .0        .0
                                         800.0     800.0
                         31                 .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
          81      1      15                 .0        .0
                         30                 .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                  2      12                 .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                         27                 .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                                            .0        .0
                  3      16                 .0        .0
                                            .0        .0
                                            .0        .0
```

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC07	81	3	16		.0	.0
					.0	.0
					.0	.0
			31		6.0	2.0
					8.0	2.0
					8.0	3.0
					8.0	2.0
					8.0	2.0
					7.6	2.2
		4	15	.00		
			30	.04		
		5	15	1.75		
			29	.60		
BC08	80	1	3		800.0	800.0
					800.0	800.0
					800.0	800.0
					800.0	800.0
					800.0	800.0
					800.0	800.0
		2	4		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			15		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	3		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			14		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC08	80	3	31	1.00		
		4	14	.13		
			30	.43		
		5	15	1.63		
			30	.34		
		6	16	.00		
			30	.00		
		7	14	1.31		
			31	.20		
		8	15	.26		
			29	.39		
		9	15	.40		
			29	.05		
		10	15	.94		
			31	.28		
		11	14	.38		
		12	1	.11		
			15		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		2	13		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			27		.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC08	81	2	27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		4	15	.00		
			30	.16		
		5	15	945.00		
			29	.60		
BC09	80	1	3		24.0	3.0
					34.0	3.0
					28.0	5.0
					32.0	4.0
					25.0	4.0
					28.8	3.8
		2	4		26.0	5.0
					15.0	4.0
					37.0	8.0
					29.0	7.0
					31.0	8.0
					27.6	6.4
			15		24.0	5.0
					22.0	4.0
					.0	.0
					26.0	5.0
					26.0	6.0
					19.6	4.0
		3	3		16.0	6.0
					.0	.0
					8.0	1.0
					.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
8C09	80	3	3		16.0	5.0
					8.0	2.4
			14		.0	.0
					.0	.0
					.0	.0
					.0	.0
					16.0	5.0
					3.2	1.0
			31	.68		
		4	14	.15		
			30	.34		
		5	15	.96		
			30	.32		
		6	16	.00		
			30	.00		
		7	14	.78		
			31	.13		
		8	15	.33		
			29	.28		
		9	15	.25		
			29	.00		
		10	15	.96		
			31	.20		
		11	14	985.00		
		12	1	.14		
			15		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
	81	1	15		.0	.0
			30		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC09	81	1	30		.0	.0
		2	13		.0	.0
					.0	.0
					.0	.0
					.0	.0
					800.0	.0
					.0	.0
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
			31		6.0	2.0
				.00	800.0	.0
					4.0	1.0
				.00	800.0	.0
					4.0	1.0
					4.7	1.3
		4	15	.00		
			30	.09		
		5	15	945.00		
			29	.39		
BC13	80	1	3		32.0	4.0
					40.0	5.0
					36.0	4.0
					40.0	6.0
					46.0	4.0
					38.8	4.6
		2	4		56.0	12.0
					55.0	15.0
					50.0	9.0
					54.0	11.0
					62.0	13.0
					55.6	12.0
			15		50.0	14.0
					46.0	11.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
8C13	80	2	15		50.0	6.0
					54.0	11.0
					55.0	10.0
					51.0	10.4
		3	3		47.0	9.0
					58.0	13.0
					47.0	13.0
					52.0	15.0
					54.0	13.0
					51.6	12.6
			14		46.0	13.0
					62.0	16.0
					58.0	13.0
					50.0	15.0
					62.0	17.0
					55.6	14.8
			31	1.40		
		4	14	.59		
			30	.50		
		5	15	1.30		
			30	.21		
		6	16	.00		
			30	.00		
		7	14	1.38		
			31	.34		
		8	15	.42		
			29	.40		
		9	15	.40		
			29	.06		
		10	15	1.00		
			31	.42		
		11	14	.48		
		12	1	.17		
			15		4.2	.2
					4.0	.0
					8.0	1.0
					2.0	.0
					3.0	.0
					4.0	.0
			31		6.6	.8
					6.0	1.0
					11.0	1.0
					8.0	1.0

Table 3.2-2 (cont.)

MICROCLIMATE DATA

PRECIPITATION WITH SNOW DEPTH AND SNOW MOISTURE TOTALS

JANUARY 1980 - MAY 1981

STATION	YEAR	MONTH	DAY	PRECIP	SNODPTH	SNOMOIST
BC13	80	12	31		4.0	1.0
					4.0	.0
	81	1	15		.0	.0
			30		13.6	2.6
					12.0	3.0
					20.0	4.0
					12.0	2.0
					16.0	3.0
					8.0	1.0
		2	13		24.0	4.0
					24.0	4.0
					25.0	4.0
					20.0	3.0
					26.0	5.0
					23.8	4.0
			27		.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
					.0	.0
		3	16		.0	.0
					14.0	4.0
					.0	.0
					.0	.0
					.0	.0
					2.8	.8
			31		22.0	4.0
					19.0	3.0
					14.0	2.0
					18.0	4.0
					16.0	3.0
					17.8	3.2
		4	15	.00		
			30	.08		
		5	15	1.76		
			29	.71		

3.3 Scenic Values Study

No additional studies were conducted during this report period.

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3.4 Traffic Load

This section contains data relating to vehicular and passenger load along Piceance Creek road and into the C-b Oil Shale Tract.

Daily vehicle counts taken at the C-b Guard Shack are presented in Table 3.4-1. These data were broken down into counts of cars and trucks beginning in January 1980.

The C-b Shale Oil Project began providing regular bus service for employees to and from the C-b Tract on April 1, 1978. Table 3.4-2, summarizes bus passenger miles data for 1980. Contractor work force data by shift have been provided starting September 21, 1979 and are on file in Grand Junction.

A program of monitoring vehicular traffic was initiated in March, 1978. Counters were placed at the Rio Blanco Store (BT01), Cattleguard (BT02), and Rio Blanco Lake (BT03). Table 3.4-3 presents a summary of the traffic data collected at these three stations for this report period, also included is the raw data for the same stations.

Table 3.4-1

GUARD SHACK TRAFFIC COUNT

Day / Month		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
January	Car	2	12	30	37	21	16	6	70	70	21	31	17	14	36	75	61	74	47	5	11	48	76	53	38	7	10	26	21	35	39	50
	Truck	0	7	8	4	3	0	3	18	10	3	6	5	0	5	10	13	15	13	0	0	0	8	16	11	11	9	4	7	11	0	18
February	Car	42	24	10	35	93	53	45	37	10	19	38	76	51	9	50	13	20	21	62	85	52	41	13	9	89	40	14	29	28		
	Truck	6	17	5	14	16	8	8	8	0	1	13	6	12	4	6	1	0	3	3	11	9	13	2	0	13	20	10	14	8		
March	Car	19	30	89	37	34	13	66	20	7	33	83	87	73	87	30	9	69	61	65	24	68	12	9	58	23	28	40	93	12	28	12
	Truck	0	5	11	21	10	6	6	5	0	19	10	12	12	17	10	5	24	17	17	13	18	4	0	12	6	10	10	14	1	0	7
April	Car	47	59	39	28	32	18	14	51	34	74	67	41	1	26	17	59	55	34	5	19	43	62	63	77	51	50	35	58	75	68	
	Truck	12	8	3	8	6	2	8	10	12	7	16	0	0	9	6	12	7	3	0	1	6	5	6	13	9	0	0	5	8	5	
May	Car	43	84	17	25	34	62	45	72	71	26	30	47	45	77	56	26	32	7	60	113	89	53	94	15	28	12	91	80	91	110	15
	Truck	6	2	0	0	9	4	7	5	4	0	0	3	7	2	4	3	0	1	13	18	17	4	10	4	0	0	5	1	11	1	0
June	Car	52	59	95	71	63	41	51	26	88	92	44	62	86	28	29	72	115	67	72	81	31	34	95	98	88	96	78	3	34	86	
	Truck	0	7	2	3	5	7	2	0	4	6	4	15	17	0	0	13	15	12	11	6	1	0	8	10	19	12	11	1	0	7	
July	Car	110	82	59	15	33	39	73	96	76	85	116	40	43	56	79	98	73	105	42	41	81	73	35	82	76	42	37	42	107	105	121
	Truck	11	8	8	0	3	1	8	9	6	2	3	0	0	7	7	7	7	12	2	0	7	8	14	12	19	6	1	8	6	9	20
August	Car	72	41	48	33	90	76	94	99	51	36	91	130	132	102	150	47	42	113	140	84	51	113	32	39	74	60	114	88	83	45	41
	Truck	17	3	0	12	3	5	3	4	1	0	5	13	6	7	14	0	0	21	16	13	9	8	1	1	17	11	4	7	7	6	0
September	Car	22	193	87	85	100	36	29	78	123	116	119	96	55	38	36	124	142	94	107	100	50	108	118	89	83	122	63	41	73	106	
	Truck	4	11	9	7	7	0	0	4	9	5	4	6	0	0	2	12	18	14	17	10	0	9	1	6	4	35	0	0	54	34	
October	Car	103	100	105	62	20	75	86	100	104	102	43	31	71	107	93	105	81	51	45	104	143	96	101	95	41	34	80	132	118	165	125
	Truck	18	7	16	2	0	42	44	39	51	29	0	0	45	47	32	38	35	6	0	36	14	12	17	23	0	1	18	49	31	32	30
November	Car	60	41	144	116	112	100	89	53	58	123	133	104	83	110	47	54	112	144	115	129	113	52	70	105	122	136	21	73	47	42	
	Truck	15	1	49	34	35	39	37	10	1	11	5	12	3	12	0	7	28	22	18	12	20	0	0	13	10	15	1	6	0	0	
December	Car	103	121	128	94	92	51	46	98	123	90	160	113	38	50	91	116	145	90	108	44	42	99	99	81	17	46	46	46	106	126	165
	Truck	8	4	7	10	7	0	0	3	1	18	7	18	0	0	20	12	19	11	18	0	0	16	16	4	0	0	0	0	6	15	5

Table 3.4-1 (cont.)

CATHEDRAL BLUFFS GUARD SHACK DAILY TRAFFIC COUNT - 1981

MONTH	DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
January	Car	12	56	51	43	89	80	81	94	98	34	41	88	106	118	112	96	49	58	73	114	118	121	142	75	52	112	143	92	82	72	31
	Truck	0	3	0	0	5	11	15	12	13	0	0	9	8	1	1	4	0	0	9	11	10	17	23	0	0	16	16	5	10	7	0
February	Car	40	106	60	96	95	109	38	39	92	85	87	97	110	59	31	83	117	134	150	106	52	45	110	148	157	126	131	105			
	Truck	0	11	13	14	6	8	0	0	6	1	4	8	4	7	0	2	4	10	10	4	0	0	17	0	6	4	6	0			
March	Car	48	94	114	106	101	118	25	44	91	122	85	101	92	56	43	119	98	106	114	112	48	27	112	137	129	89	97	33	43	78	85
	Truck	0	5	5	8	15	12	0	1	8	7	6	8	9	0	0	8	8	9	6	10	6	0	15	14	15	11	4	0	1	5	9
April	Car	100	111	117	32	46	89	104	111	120	118	88	52	118	123	124	194	71	52	41	116	139	129	104	112	52	38	124	111	106	135	
	Truck	8	12	13	7	1	14	13	9	4	5	0	0	7	3	3	15	3	0	0	11	6	7	2	4	9	10	21	6	11	21	
May	Car	138	47	52	88	132	112	124	106	50	38	115	148	127	109	111	53	39	131	139	113	116	100	43	36	23	107	120	159	138	38	46
	Truck	20	9	0	12	13	10	9	9	6	0	10	10	2	15	10	5	2	28	17	2	11	8	0	0	0	15	14	17	15	4	0
June	Car	109	105	126	136	48	202	41	117	152	121	132																				
	Truck	16	17	16	13	0	10	0	6	9	9	11																				
July	Car																															
	Truck																															
August	Car																															
	Truck																															
September	Car																															
	Truck																															
October	Car																															
	Truck																															
November	Car																															
	Truck																															
December	Car																															
	Truck																															

Table 3.4-2

BUS PASSENGER MILE REPORT SUMMARY 1980-1981

Month	No. Half Trips Rifle to C-B	No. Half Trips C-B to Rifle	No. Half Trips Meeker to C-B	No. Half Trips C-B to Meeker	Total Passenger*	Cummulative Total Passengers*	Total Passenger Miles*	Cummulative Total Passenger Miles*
Nov. 1980	163	163	93	93	7,933 1,643	7,933 1,643	14,018 8,928	14,018 8,928
Dec. 1980	157	157	93	93	7,751 1,624	15,684 3,267	13,502 8,928	27,520 17,856
Jan. 1981	157	157	93	93	8,429 1,850	24,113 5,117	13,502 8,928	41,022 26,784
Feb. 1981	142	142	84	84	7,542 1,644	31,655 6,761	12,298 8,064	53,320 34,848
March 1981	160	160	93	93	8,320 1,691	39,975 8,452	13,760 8,928	67,080 43,776
April 1981	151	151	90	90	7,623 1,651	47,598 10,103	12,996 8,604	80,076 52,380
May 1981	152	152	93	93	6,980 1,721	54,578 11,824	13,072 8,838	93,148 61,218

* Rifle
Meeker

BUS CAPASITY 47
Fleet: 4 Buses to Rifle
1 Bus to Meeker
2 Buses are standby

Table 3.4-3

TRAFFIC DATA FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
80	12	8	18	0	3	0	2	0	0
			19	31	2	7	0	1	1
			20	18	5	4	0	9	2
			21	8	5	1	2	3	2
			22	4	2	1	1	3	1
			23	2	12	2	0	1	3
			24	2	5	2	11	2	3
		9	1	1	1	2	0	1	2
			2	17	0	11	0	6	0
			3	0	0	0	1	0	2
			4	0	1	1	1	0	0
			5	1	2	0	0	0	0
			6	1	6	1	0	0	0
			7	0	53	0	2	0	15
			8	1	57	2	39	1	25
			9	6	18	8	17	3	13
			10	16	16	18	9	8	4
			11	9	17	6	9	7	10
			12	6	15	7	6	9	11
			13	12	15	8	3	14	7
			14	9	13	6	13	6	14
			15	8	12	14	3	6	8
			16	18	13	8	16	17	7
			17	27	9	10	8	20	6
			18	78	3	42	0	20	2
			19	39	5	5	3	15	3
			20	8	6	0	1	6	0
			21	5	3	1	0	6	0
			22	4	3	1	1	4	3
			23	3	14	1	1	1	5
			24	3	3	1	13	0	3
		10	1	2	2	3	0	1	0
			2	13	1	13	0	5	0
			3	3	1	0	2	0	0
			4	0	0	1	0	1	1
			5	0	2	0	0	1	0
			6	0	4	0	1	5	1
			7	0	51	0	1	0	12
			8	1	62	1	53	3	27
			9	2	24	9	16	2	15
			10	27	19	19	22	9	12
			11	9	12	6	11	4	6
			12	6	4	11	6	15	4
			13	12	8	14	6	3	11
			14	13	9	8	7	6	6

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
80	12	10	15	11	26	11	10	12	9
			16	17	17	12	19	8	9
			17	19	6	14	7	12	5
			18	88	4	52	2	21	2
			19	45	4	10	0	15	1
			20	13	5	0	1	6	1
			21	3	1	0	0	3	1
			22	5	2	0	0	2	0
			23	1	9	0	0	3	8
			24	1	4	1	9	2	1
		11	1	2	0	3	2	0	0
			2	18	0	13	0	2	0
			3	0	0	0	0	0	1
			4	0	0	0	0	0	1
			5	1	4	0	0	0	0
			6	0	6	0	0	0	0
			7	0	59	0	2	2	14
			8	0	60	0	56	1	23
			9	6	25	5	18	4	16
			10	16	15	14	16	6	11
			11	11	19	10	6	4	9
			12	12	5	7	10	10	10
			13	12	18	11	7	3	7
			14	21	8	14	5	3	4
			15	18	27	6	11	7	8
			16	19	13	19	22	6	7
			17	31	10	24	4	11	4
			18	98	4	53	4	24	3
			19	43	4	10	2	14	1
			20	13	2	1	2	6	2
			21	4	8	1	0	2	0
			22	1	7	0	0	2	4
			23	4	9	0	1	3	5
			24	2	4	1	7	0	4
		12	1	1	1	3	2	1	0
			2	18	1	16	0	3	0
			3	3	0	0	0	1	0
			4	0	0	0	0	0	0
			5	0	2	0	0	0	1
			6	1	7	0	0	0	0
			7	0	62	0	2	1	10
			8	2	60	0	59	0	23
			9	4	16	6	8	4	20
			10	16	14	13	13	7	13
			11	9	23	9	10	2	10

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
80	12	12	12	12	14	2	15	4	7
			13	21	12	14	5	5	6
			14	23	13	15	4	8	6
			15	18	21	9	8	7	7
			16	19	17	21	22	13	9
			17	23	11	13	4	15	8
			18	102	3	63	4	29	3
			19	34	2	4	1	19	4
			20	13	3	6	1	8	1
			21	8	4	0	1	5	3
			22	5	2	2	0	1	2
			23	4	5	0	0	0	8
			24	1	5	0	8	1	0
		13	1	0	0	2	1	1	2
			2	22	1	17	0	2	0
			3	2	1	1	1	0	0
			4	1	1	1	0	0	1
			5	0	2	0	0	0	0
			6	0	1	0	0	1	1
			7	0	22	0	0	0	3
			8	1	28	1	18	0	13
			9	2	8	3	6	2	16
			10	12	12	7	6	7	7
			11	6	5	2	0	4	11
			12	7	7	3	2	9	8
			13	9	8	5	4	9	7
			14	12	6	4	1	7	4
			15	6	20	0	4	10	14
			16	8	11	4	17	9	7
			17	15	6	5	1	10	2
			18	39	6	18	1	19	2
			19	15	5	2	0	11	4
			20	7	1	1	1	4	1
			21	5	1	1	0	2	2
			22	3	2	0	0	3	3
			23	0	8	0	2	3	5
			24	0	5	0	6	1	0
		14	1	1	4	3	0	0	1
			2	22	1	15	0	2	1
			3	0	2	0	0	0	0
			4	1	2	0	0	0	0
			5	2	0	1	1	0	0
			6	0	2	1	0	0	0
			7	0	20	0	2	0	7
			8	1	16	0	15	1	11

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				RT01		RT02		RT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
80	12	14	9	3	6	1	5	1	6
			10	17	10	10	3	6	11
			11	5	7	1	4	11	11
			12	2	9	1	4	5	8
			13	6	12	6	7	3	8
			14	6	6	5	2	5	5
			15	6	21	2	0	4	7
			16	7	8	6	12	9	10
			17	9	4	10	0	6	2
			18	34	1	20	0	10	6
			19	14	4	1	1	20	3
			20	3	3	1	0	4	1
			21	8	3	1	1	2	2
			22	9	2	1	0	4	1
			23	1	7	0	2	0	3
			24	1	8	0	5	0	4
		15	1	0	0	3	0	1	0
			2	13	0	12	0	4	1
			3	1	0	0	0	1	0
			4	0	1	0	0	0	0
			5	0	1	0	0	1	5
			6	5	7	0	1	1	1
			7	1	59	1	2	1	11
			8	3	54	1	50	1	22
			9	5	20	5	15	3	9
			10	15	15	16	11	3	17
			11	25	12	10	12	9	7
			12	13	12	13	6	8	10
			13	18	12	5	7	7	6
			14	16	15	14	3	16	4
			15	13	32	11	6	7	10
			16	10	13	10	21	13	10
			17	23	8	10	7	24	9
			18	72	8	39	3	17	8
			19	42	6	12	0	14	4
			20	13	7	2	0	4	4
			21	6	0	0	0	6	1
			22	5	3	1	0	4	5
			23	7	9	0	0	4	5
			24	1	1	2	8	4	4
		16	1	0	0	0	0	1	0
			2	14	0	12	0	6	4
			3	2	0	0	0	5	0
			4	0	1	0	1	0	0
			5	0	1	0	1	0	1

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
80	12	16	6	0	7	1	1	0	1
			7	1	54	0	3	0	8
			8	1	51	0	42	0	19
			9	5	21	3	19	2	18
			10	15	17	13	9	13	16
			11	11	18	10	11	7	14
			12	8	13	22	11	12	7
			13	15	19	0	0	9	8
			14	11	12	0	0	7	11
			15	21	28	0	0	8	16
			16	17	9	0	0	12	8
			17	28	5	0	0	20	3
			18	0	0	0	0	24	6
			19	0	0	0	0	17	2
			20	0	0	0	0	5	2
			21	0	0	0	0	3	3
			22	0	0	0	0	3	1
			23	0	0	0	0	2	7
			24	0	0	0	0	0	3
		17	1	0	0	0	0	2	0
			2	0	0	0	0	9	0
			3	0	0	0	0	0	0
			4	0	0	0	0	1	0
			5	0	0	0	0	0	0
			6	0	0	0	0	0	1
			7	0	0	0	0	1	13
81	1	5	18	0	4	0	3	0	0
			19	4	3	3	1	0	0
			20	8	1	0	0	5	1
			21	3	1	1	1	0	0
			22	5	2	1	0	1	2
			23	1	4	0	0	0	3
			24	1	3	2	5	0	1
		6	1	1	0	3	0	1	1
			2	9	1	6	0	5	0
			3	2	1	0	0	1	1
			4	1	1	1	0	1	0
			5	0	0	0	0	0	0
			6	0	1	0	0	0	0
			7	0	36	0	1	0	10
			8	3	48	1	33	6	23
			9	3	13	8	14	3	12
			10	10	18	11	9	8	10
			11	7	15	8	7	4	6
			12	10	12	8	7	5	7

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	1	6	13	9	22	11	11	9	8
			14	14	11	14	9	1	9
			15	15	19	10	6	9	12
			16	7	15	16	23	10	14
			17	25	7	20	3	10	2
			18	59	1	42	3	30	3
			19	32	4	2	1	14	1
			20	8	4	1	1	4	0
			21	6	1	1	0	1	6
			22	4	4	0	0	4	2
			23	6	10	1	1	1	8
			24	0	3	0	6	3	0
		7	1	0	0	6	0	3	0
			2	15	0	12	1	3	0
			3	3	1	0	1	0	0
			4	0	1	0	1	0	0
			5	0	0	0	0	0	1
			6	0	4	0	0	0	1
			7	0	38	1	2	1	13
			8	2	46	2	39	4	20
			9	2	16	4	14	4	7
			10	15	14	17	6	6	18
			11	17	7	9	4	6	8
			12	7	18	8	9	6	10
			13	9	15	11	15	10	5
			14	13	13	3	12	10	8
			15	7	13	11	8	8	5
			16	25	20	12	20	7	3
			17	14	4	12	3	10	4
			18	66	4	40	6	20	3
			19	36	1	6	0	10	3
			20	9	4	2	0	5	4
			21	0	2	1	0	3	1
			22	0	0	0	0	3	2
			23	1	4	1	1	2	6
			24	2	3	0	5	2	2
		8	1	0	0	1	0	2	0
			2	15	0	14	0	2	1
			3	4	0	1	0	0	1
			4	0	0	0	0	0	0
			5	0	0	0	1	0	0
			6	1	5	1	0	0	0
			7	0	39	0	1	2	13
			8	3	45	1	39	1	16
			9	5	18	2	14	3	6

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	1	8	10	7	15	12	10	7	14
			11	16	12	9	10	3	5
			12	5	16	8	9	5	12
			13	15	11	16	13	5	2
			14	10	13	9	11	6	8
			15	18	14	11	7	7	6
			16	21	16	10	15	8	5
			17	24	4	7	4	13	1
			18	62	5	41	1	21	2
			19	37	8	6	1	17	3
			20	10	5	4	0	5	5
			21	5	1	1	1	3	2
			22	2	3	2	0	2	0
			23	1	10	0	1	0	5
			24	2	1	1	7	3	1
		9	1	2	1	2	0	2	0
			2	18	2	12	2	3	1
			3	1	3	1	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	1	0	0
			6	3	1	4	0	0	1
			7	0	45	0	0	0	13
			8	1	61	0	51	0	23
			9	5	15	4	7	2	16
			10	10	9	12	10	12	10
			11	9	14	5	7	4	4
			12	11	12	9	7	10	4
			13	10	8	12	5	5	5
			14	20	12	7	7	5	7
			15	13	18	9	9	7	6
			16	16	10	6	12	8	7
			17	14	5	8	4	14	8
			18	83	3	46	0	22	1
			19	40	6	3	2	15	2
			20	6	4	2	0	1	1
			21	3	3	0	0	2	1
			22	2	6	0	1	3	1
			23	3	9	1	0	0	8
			24	0	2	0	8	2	0
		10	1	2	0	2	1	2	1
			2	21	1	12	1	2	1
			3	1	0	1	0	1	0
			4	0	0	0	0	1	0
			5	0	1	0	0	0	0
			6	0	0	0	0	0	0

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	1	10	7	0	13	0	1	1	6
			8	1	16	1	12	0	11
			9	1	5	3	2	0	6
			10	9	9	7	4	8	3
			11	5	3	0	3	2	6
			12	8	6	5	2	4	7
			13	8	5	0	1	4	3
			14	2	8	4	0	5	8
			15	12	12	0	1	7	8
			16	3	10	2	11	4	7
			17	7	7	1	0	9	3
			18	29	3	18	1	13	2
			19	10	13	1	2	5	1
			20	2	2	0	1	5	1
			21	4	4	0	0	3	1
			22	0	0	0	0	2	1
			23	2	6	0	1	0	7
			24	2	5	0	7	1	0
		11	1	1	0	1	0	1	1
			2	13	1	9	0	3	0
			3	2	0	0	0	0	0
			4	0	1	0	0	0	0
			5	0	2	0	1	0	0
			6	0	1	0	1	0	0
			7	0	9	1	0	0	9
			8	1	16	0	17	0	7
			9	2	4	1	3	1	5
			10	11	5	7	1	8	5
			11	4	9	0	2	7	4
			12	4	1	2	1	2	3
			13	2	4	0	1	3	5
			14	7	2	3	1	3	7
			15	6	15	2	0	4	8
			16	9	6	1	14	2	1
			17	4	2	4	1	8	2
			18	21	4	16	0	10	0
			19	3	3	0	2	5	2
			20	1	2	0	1	6	2
			21	2	3	1	0	1	0
			22	3	2	0	0	2	0
			23	0	3	0	1	0	7
			24	0	2	0	5	1	2
		12	1	0	2	0	2	1	0
			2	17	2	14	0	2	0
			3	1	0	0	0	3	0

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	1	12	4	0	0	0	0	0	0
			5	1	0	0	0	0	0
			6	0	1	0	0	0	0
			7	0	43	0	0	5	11
			8	2	49	1	48	0	19
			9	5	16	3	8	7	8
			10	8	14	6	8	5	8
			11	9	16	8	8	4	9
			12	9	8	4	7	7	9
			13	9	5	13	4	4	6
			14	12	11	8	7	8	4
			15	9	27	10	7	5	9
			16	19	15	12	23	6	6
			17	13	5	10	3	15	2
	2	6	17	0	4	0	0	0	0
			18	26	3	0	0	0	0
			19	12	4	0	0	0	0
			20	2	3	0	0	0	0
			21	2	2	0	0	0	0
			22	2	4	0	0	0	0
			23	2	2	0	0	0	0
			24	1	0	0	0	0	0
		7	1	19	1	0	0	0	0
			2	1	0	0	0	0	0
			3	0	0	0	0	0	0
			4	0	1	0	0	0	0
			5	0	0	0	0	0	0
			6	0	12	0	0	0	0
			7	0	24	0	0	0	0
			8	0	5	0	0	0	0
			9	5	5	0	0	0	0
			10	9	2	0	0	0	0
			11	6	6	0	0	0	0
			12	10	2	0	0	0	0
			13	3	4	0	0	0	0
			14	4	14	0	0	0	0
			15	11	11	0	0	0	0
			16	7	4	0	0	0	0
			17	25	4	0	0	0	0
			18	12	3	0	0	0	0
			19	4	3	0	0	0	0
			20	2	4	0	0	0	0
			21	3	1	0	0	0	0
			22	0	8	0	0	0	0
			23	1	0	0	0	0	0

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	2	7	24	0	1	0	0	0	0
		8	1	10	1	0	0	0	0
			2	3	0	0	0	0	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	1	0	0	0	0
			6	0	8	0	0	0	0
			7	1	16	0	0	0	0
			8	0	3	0	0	0	0
			9	6	7	0	0	0	0
			10	3	4	0	0	0	0
			11	4	6	0	0	0	0
			12	5	1	0	0	0	0
			13	4	9	0	0	0	0
			14	7	11	0	0	0	0
			15	5	10	0	0	0	0
			16	4	8	0	0	0	0
			17	27	6	0	0	0	0
			18	7	0	0	0	0	0
			19	5	3	0	0	0	0
			20	3	5	0	0	0	0
			21	0	3	0	0	0	0
			22	0	5	0	0	0	0
			23	0	3	0	0	0	0
			24	1	1	0	0	0	0
		9	1	9	0	0	0	0	0
			2	3	0	0	0	0	0
			3	4	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	3	0	0	0	0
			6	0	49	0	0	0	0
			7	0	50	0	0	0	0
			8	4	13	0	0	0	0
			9	9	9	0	0	0	0
			10	16	15	0	0	0	0
			11	7	9	0	0	0	0
			12	16	12	0	0	0	0
			13	8	10	0	0	0	0
			14	14	13	0	0	0	0
			15	11	8	0	0	0	0
			16	10	4	0	0	0	0
			17	62	5	0	0	0	6
			18	27	2	0	4	16	4
			19	6	4	4	1	2	2
			20	2	4	0	0	1	0

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	2	9	21	1	1	0	0	1	5
			22	1	7	0	1	0	5
			23	2	4	0	4	3	3
			24	2	1	2	0	1	1
		10	1	15	1	14	0	3	2
			2	1	0	0	0	2	1
			3	0	2	0	0	2	0
			4	0	0	0	0	3	0
			5	0	3	2	0	5	1
			6	0	23	1	3	1	5
			7	0	55	4	25	0	27
			8	2	13	11	11	3	11
			9	5	19	9	5	5	3
			10	5	15	5	3	4	5
			11	6	16	2	6	7	10
			12	7	13	8	9	3	8
			13	9	6	5	8	6	9
			14	8	16	6	3	7	8
			15	10	12	11	16	15	10
			16	17	9	9	1	10	5
			17	48	6	40	2	18	3
			18	32	2	0	0	17	1
			19	4	3	2	0	4	0
			20	4	0	0	0	1	1
			21	1	2	0	0	4	3
			22	2	12	1	1	8	4
			23	1	2	0	11	1	2
			24	1	2	3	0	1	0
		11	1	7	2	9	0	0	0
			2	4	1	1	0	1	1
			3	0	1	0	0	1	0
			4	0	0	0	0	0	0
			5	0	1	0	0	0	0
			6	0	35	0	0	1	11
			7	1	52	0	43	1	20
			8	6	12	5	9	2	11
			9	12	16	13	10	8	4
			10	4	11	4	5	5	9
			11	4	8	8	6	5	9
			12	10	6	7	10	3	5
			13	9	5	6	8	9	9
			14	15	18	8	4	5	4
			15	9	10	11	18	6	7
			16	13	7	7	4	7	6
			17	66	4	38	2	23	0

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	2	11	18	30	2	4	0	15	1
			19	2	3	2	0	6	0
			20	0	4	0	0	0	2
			21	0	8	1	1	0	0
			22	1	3	0	1	2	4
			23	0	6	0	4	0	1
			24	0	1	2	1	0	1
		12	1	8	3	13	0	7	2
			2	3	0	0	0	1	0
			3	0	1	0	0	1	0
			4	0	0	0	0	0	0
			5	0	1	0	0	0	0
			6	0	34	0	2	0	6
			7	2	51	1	38	1	19
			8	5	10	3	10	3	9
			9	7	12	10	9	3	5
			10	11	16	4	7	2	10
			11	4	15	5	8	2	7
			12	10	12	8	13	4	13
			13	11	8	16	1	6	6
			14	21	18	7	7	4	9
			15	8	12	4	22	13	8
			16	24	3	15	2	19	4
			17	63	2	39	0	18	4
			18	32	5	8	3	15	1
			19	18	5	0	1	6	0
			20	3	2	2	0	3	0
			21	3	2	0	0	2	1
			22	1	6	1	0	0	4
			23	1	2	0	6	0	0
			24	0	1	2	4	1	1
		13	1	15	0	8	0	3	0
			2	2	2	2	0	0	0
			3	0	1	0	0	1	0
			4	2	0	0	0	1	0
			5	0	1	0	0	1	2
			6	2	39	0	2	2	10
			7	1	72	0	56	0	22
			8	3	8	7	9	3	4
			9	10	5	9	4	7	11
			10	6	8	8	6	7	2
			11	10	10	4	6	4	6
			12	12	10	9	3	8	4
			13	11	7	6	4	4	9
			14	13	17	13	6	6	8

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	2	13	15	15	14	7	21	2	8
			16	13	7	12	3	8	4
			17	70	3	43	0	24	4
			18	24	3	1	0	11	4
			19	7	2	0	0	5	1
			20	5	0	0	1	2	0
			21	2	2	1	0	1	0
			22	1	5	0	0	0	5
			23	2	6	0	8	0	2
			24	1	2	0	0	4	0
		14	1	19	0	0	0	6	1
			2	3	1	0	0	2	0
			3	1	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	1	0	0	0	1
			6	0	20	0	2	2	11
			7	0	21	0	24	0	10
			8	0	7	0	5	1	2
			9	8	4	10	3	2	6
			10	6	6	2	0	4	5
			11	5	9	6	7	7	6
			12	11	2	4	3	7	5
			13	6	4	6	1	2	3
			14	8	12	0	0	4	7
			15	9	12	2	16	8	2
			16	3	5	3	2	8	1
			17	25	1	21	1	13	1
			18	7	2	0	0	6	2
			19	8	4	0	1	5	1
			20	6	1	0	0	0	0
			21	3	2	0	0	0	0
			22	1	8	0	0	0	2
			23	0	6	0	0	0	5
			24	0	0	16	0	1	0
		15	1	12	1	0	0	5	0
			2	4	0	0	0	2	0
			3	0	1	0	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	3	0	0	1	7
			7	1	18	0	0	0	8
			8	0	6	0	0	0	2
			9	8	3	0	0	3	7
			10	3	1	0	0	3	4
			11	4	7	0	0	4	4

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	2	15	12	7	9	0	0	4	5
			13	7	7	0	0	8	3
			14	5	18	0	0	5	9
			15	6	11	0	0	8	9
			16	8	3	0	0	6	2
			17	14	2	0	0	11	2
			18	5	8	0	0	11	0
			19	8	2	0	0	5	2
			20	4	4	0	0	6	2
			21	0	1	0	0	0	1
			22	2	8	0	0	1	2
			23	0	2	0	0	2	4
			24	0	1	0	0	1	1
		16	1	14	0	0	0	4	0
			2	1	0	0	0	0	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	1	0	0	0	0
			6	0	43	0	0	0	14
			7	0	29	0	0	0	25
			8	2	12	0	0	5	13
			9	7	13	0	0	6	8
			10	8	13	0	0	6	5
			11	6	8	0	0	5	8
			12	9	4	0	0	8	8
			13	10	16	0	0	9	2
			14	9	25	0	0	4	7
			15	11	9	0	0	10	5
			16	22	4	0	0	16	3
			17	43	2	0	0	24	2
			18	25	3	0	0	12	3
			19	12	0	0	0	1	3
			20	2	1	0	0	2	0
			21	1	0	0	0	0	2
			22	1	10	0	0	2	4
			23	0	5	0	0	1	7
			24	1	3	0	0	1	0
		17	1	17	0	0	0	4	0
			2	2	0	0	0	1	0
			3	0	1	0	0	0	3
			4	1	1	0	0	0	0
			5	0	2	0	0	0	9
			6	1	49	0	0	1	13
			7	3	50	0	0	2	33
			8	3	5	0	0	5	13

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	2	17	9	9	11	0	0	13	5
			10	7	14	0	0	6	4
			11	6	18	0	0	7	12
			12	7	11	0	0	8	8
			13	13	10	0	0	6	6
			14	18	21	0	0	7	4
			15	14	9	0	0	26	7
			16	16	8	0	0	20	6
			17	0	0	0	0	27	4
			18	0	0	0	0	18	6
			19	0	0	0	0	7	2
			20	0	0	0	0	5	6
			21	0	0	0	0	2	2
			22	0	0	0	0	2	5
			23	0	0	0	0	0	4
			24	0	0	0	0	1	0
		18	1	0	0	0	0	2	1
			2	0	0	0	0	0	0
			3	0	0	0	0	1	0
			4	0	0	0	0	0	0
			5	0	0	0	0	1	0
			6	0	0	0	0	0	13
	3	6	1	0	0	9300 *	9300 *	0	0
			2	0	0	9300	9300	0	0
			3	0	0	9300	9300	0	0
			4	0	0	9300	9300	0	0
			5	0	0	9300	9300	0	0
			6	0	0	9300	9300	0	0
			7	0	0	9300	9300	0	0
			8	0	0	9300	9300	0	0
			9	0	0	9300	9300	0	0
			10	0	0	9300	9300	0	0
			11	0	0	9300	9300	0	0
			12	0	0	9300	9300	0	0
			13	0	0	9300	9300	0	0
			14	0	0	9300	9300	0	0
			15	0	0	9300	9300	0	0
			16	0	0	9300	9300	0	0
			17	0	4	9300	9300	0	0
			18	26	26	9300	9300	1	0
			19	25	13	9300	9300	5	0
			20	2	14	9300	9300	3	5
			21	3	6	9300	9300	1	3
			22	2	8	9300	9300	1	3
			23	2	10	9300	9300	3	7

* Instrument Malfunction

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	3	6	24	1	5	9300 *	9300 *	3	0
		7	1	1	8	9300	9300	1	5
			2	4	2	9300	9300	3	3
			3	1	0	9300	9300	4	0
			4	0	0	9300	9300	2	0
			5	0	1	9300	9300	0	0
			6	0	2	9300	9300	0	0
			7	0	19	9300	9300	0	10
			8	0	10	9300	9300	3	13
			9	0	7	9300	9300	1	5
			10	3	14	9300	9300	5	4
			11	3	4	9300	9300	3	6
			12	5	6	9300	9300	1	5
			13	7	4	9300	9300	6	8
			14	6	6	9300	9300	6	6
			15	6	15	9300	9300	5	5
			16	7	6	9300	9300	6	2
			17	5	3	9300	9300	6	3
			18	26	5	9300	9300	15	0
			19	5	3	9300	9300	2	6
			20	5	0	9300	9300	3	3
			21	3	0	9300	9300	2	2
			22	2	3	9300	9300	2	0
			23	4	6	9300	9300	0	6
			24	6	0	9300	9300	1	3
		8	1	1	2	9300	9300	1	0
			2	8	1	9300	9300	4	1
			3	1	2	9300	9300	3	0
			4	1	0	9300	9300	1	0
			5	0	0	9300	9300	0	0
			6	0	0	9300	9300	0	0
			7	1	20	9300	9300	0	4
			8	1	14	9300	9300	0	8
			9	1	7	9300	9300	0	2
			10	10	2	9300	9300	6	3
			11	2	6	9300	9300	1	1
			12	7	8	9300	9300	4	3
			13	5	9	9300	9300	6	2
			14	3	2	9300	9300	4	2
			15	4	14	9300	9300	3	7
			16	4	6	9300	9300	4	9
			17	12	3	9300	9300	5	8
			18	31	6	9300	9300	9	2
			19	3	8	9300	9300	3	1
			20	3	3	9300	9300	4	2

* Instrument Malfunction

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	3	8	21	1	3	9300*	9300 *	2	0
			22	7	3	9300	9300	4	1
			23	1	10	9300	9300	1	2
			24	0	1	9300	9300	3	6
		9	1	3	3	9300	9300	0	0
			2	12	0	9300	9300	6	2
			3	0	0	9300	9300	2	0
			4	0	0	9300	9300	0	0
			5	1	1	9300	9300	0	0
			6	1	4	9300	9300	0	1
			7	1	62	9300	9300	0	9
			8	1	38	9300	9300	0	20
			9	3	8	9300	9300	3	5
			10	15	21	9300	9300	8	11
			11	6	18	9300	9300	2	3
			12	9	10	9300	9300	8	8
			13	14	11	9300	9300	7	10
			14	10	7	9300	9300	8	6
			15	13	23	9300	9300	12	6
			16	15	13	9300	9300	7	8
			17	14	8	9300	9300	9	4
			18	73	2	9300	9300	19	6
			19	20	0	9300	9300	16	4
			20	11	3	9300	9300	3	1
			21	4	3	9300	9300	0	0
			22	0	4	9300	9300	3	1
			23	2	6	9300	9300	1	3
			24	2	1	9300	9300	2	2
		10	1	2	0	9300	9300	0	0
			2	18	0	9300	9300	7	0
			3	0	0	9300	9300	2	0
			4	0	0	9300	9300	0	0
			5	1	0	9300	9300	0	3
			6	0	2	9300	9300	0	1
			7	0	61	9300	9300	0	7
			8	2	25	9300	9300	0	21
			9	6	23	9300	9300	7	6
			10	21	18	9300	9300	9	9
			11	7	20	9300	9300	9	13
			12	9	14	9300	9300	7	5
			13	18	15	9300	9300	12	6
			14	14	6	9300	9300	4	4
			15	12	23	9300	9300	5	14
			16	14	13	9300	9300	6	8
			17	16	10	9300	9300	5	6

* Instrument Malfunction

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	3	10	18	77	2	9300*	9300*	20	4
			19	21	2	9300	9300	13	1
			20	11	2	9300	9300	7	2
			21	5	3	9300	9300	5	2
			22	0	5	9300	9300	3	2
			23	4	14	9300	9300	0	5
			24	0	4	9300	9300	2	4
		11	1	2	2	9300	9300	1	0
			2	17	1	9300	9300	9	0
			3	0	0	9300	9300	0	0
			4	0	0	9300	9300	1	0
			5	2	0	9300	9300	0	0
			6	0	4	9300	9300	0	2
			7	0	63	9300	9300	0	8
			8	3	33	9300	9300	2	27
			9	6	18	9300	9300	3	3
			10	21	14	9300	9300	9	14
			11	11	19	9300	9300	3	11
			12	6	8	9300	9300	7	5
			13	22	7	9300	9300	5	7
			14	15	7	9300	9300	14	4
			15	9	19	9300	9300	1	10
			16	11	11	9300	9300	7	8
			17	23	7	9300	9300	9	2
			18	77	1	9300	9300	30	2
			19	15	2	9300	9300	9	3
			20	9	3	9300	9300	11	4
			21	4	1	9300	9300	2	0
			22	2	4	9300	9300	1	2
			23	0	12	9300	9300	2	5
			24	1	1	9300	9300	0	2
		12	1	1	1	9300	9300	2	0
			2	14	0	9300	9300	9	0
			3	0	0	9300	9300	0	1
			4	0	0	9300	9300	3	0
			5	0	0	9300	9300	0	0
			6	0	2	9300	9300	0	5
			7	0	52	9300	9300	0	11
			8	2	39	9300	9300	1	22
			9	5	16	9300	9300	4	13
			10	21	13	9300	9300	4	14
			11	10	9	9300	9300	4	9
			12	5	9	9300	9300	4	10
			13	16	14	9300	9300	4	7
			14	17	12	9300	9300	14	3

* Instrument Malfunction

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	3	12	15	12	22	9300 *	9300 *	12	8
			16	19	7	9300	9300	16	5
			17	12	10	9300	9300	13	4
			18	78	3	9300	9300	22	1
			19	18	2	9300	9300	12	2
			20	10	5	9300	9300	6	3
			21	5	3	9300	9300	5	2
			22	2	2	9300	9300	3	0
			23	2	9	9300	9300	2	5
			24	1	5	9300	9300	1	2
		13	1	1	0	9300	9300	7	0
			2	12	0	9300	9300	7	1
			3	0	0	9300	9300	0	2
			4	0	0	9300	9300	0	1
			5	0	0	9300	9300	0	0
			6	0	1	9300	9300	1	0
			7	1	63	9300	9300	0	13
			8	6	38	9300	9300	0	20
			9	4	11	9300	9300	4	6
			10	18	13	9300	9300	10	5
			11	5	12	9300	9300	4	15
			12	17	11	9300	9300	5	7
			13	13	13	9300	9300	3	10
			14	23	9	9300	9300	8	5
			15	17	13	9300	9300	8	14
			16	10	8	9300	9300	10	8
			17	12	0	9300	9300	20	5
			18	0	0	9300	9300	20	3
			19	0	0	9300	9300	9	4
			20	0	0	9300	9300	2	0
			21	0	0	9300	9300	1	0
			22	0	0	9300	9300	0	0
			23	0	0	9300	9300	0	3
			24	0	0	9300	9300	0	0
		14	1	0	0	0	0	3	1
			2	0	0	0	0	6	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	0	0	0	0	0
			7	0	0	0	0	0	3
			8	0	0	0	0	0	3
			9	0	0	0	0	2	1
			10	0	0	0	0	3	7
			11	0	0	0	0	3	6

* Instrument Malfunction

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	3	14	12	0	0	0	0	2	10
			13	0	0	0	0	7	2
			14	0	0	0	0	10	2
			15	0	0	0	0	6	7
			16	0	0	0	0	5	5
			17	0	0	0	0	5	2
			18	0	0	0	0	12	1
			19	0	0	0	0	4	1
			20	0	0	0	0	3	1
			21	0	0	0	0	5	0
			22	0	0	0	0	3	1
			23	0	0	0	0	1	3
			24	0	0	0	0	1	0
		15	1	0	0	0	0	1	0
			2	0	0	0	0	5	0
			3	0	0	0	0	0	0
			4	0	0	0	0	1	0
			5	0	0	0	0	0	0
			6	0	0	0	0	0	0
			7	0	0	0	0	0	4
			8	0	0	0	0	0	3
			9	0	0	0	0	0	8
			10	0	0	0	0	5	9
			11	0	0	0	0	4	9
			12	0	0	0	0	0	4
			13	0	0	0	0	7	4
			14	0	0	0	0	8	4
			15	0	0	0	0	6	7
			16	0	0	0	0	10	2
			17	0	0	0	0	6	2
			18	0	0	0	0	14	6
			19	0	0	0	0	1	3
			20	0	0	0	0	1	0
			21	0	0	0	0	2	2
			22	0	0	0	0	1	0
			23	0	0	0	0	0	4
			24	0	0	0	0	0	0
		16	1	0	0	0	0	1	0
			2	0	0	0	0	5	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	0	0	0	0	2
			7	0	0	0	0	1	11
	4	10	17	0	5	0	0	0	2

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	4	10	18	17	9	0	0	12	9
			19	11	3	0	0	8	1
			20	8	1	0	0	8	1
			21	3	1	0	0	3	2
			22	1	7	0	0	2	5
			23	0	9	0	0	1	2
			24	0	0	0	0	5	1
		11	1	15	1	0	0	2	1
			2	1	0	0	0	2	1
			3	2	1	0	0	0	0
			4	0	0	0	0	0	0
			5	1	5	0	0	0	0
			6	0	16	0	0	0	3
			7	1	22	0	0	2	13
			8	1	8	0	0	1	3
			9	21	5	0	0	6	10
			10	4	8	0	0	5	4
			11	9	5	0	0	2	6
			12	4	3	0	0	4	5
			13	9	7	0	0	7	5
			14	7	15	0	0	5	8
			15	7	10	0	0	9	5
			16	2	6	0	0	10	0
			17	28	6	0	0	11	5
			18	8	3	0	0	8	1
			19	5	3	0	0	1	5
			20	3	1	0	0	6	1
			21	6	2	0	0	3	1
			22	3	6	0	0	0	5
			23	0	5	0	0	2	3
			24	1	2	0	0	0	5
		12	1	1	2	0	0	6	0
			2	0	0	0	0	1	0
			3	0	1	0	0	0	0
			4	0	0	0	0	0	0
			5	0	15	0	0	0	0
			6	2	18	0	0	0	3
			7	1	4	0	0	0	10
			8	13	7	0	0	5	7
			9	8	4	0	0	5	6
			10	8	4	0	0	4	4
			11	5	3	0	0	4	8
			12	4	5	0	0	6	6
			13	6	3	0	0	4	5
			14	5	12	0	0	3	11

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	4	12	15	4	13	0	0	5	8
			16	4	6	0	0	19	4
			17	30	3	0	0	13	0
			18	8	6	0	0	10	2
			19	2	2	0	0	3	0
			20	3	4	0	0	3	1
			21	3	2	0	0	2	2
			22	2	5	0	0	1	3
			23	1	6	0	0	0	2
			24	14	3	0	0	2	0
		13	1	10	0	0	0	4	0
			2	2	0	0	0	0	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	4	0	0	0	2
			6	0	51	0	0	0	10
			7	1	50	0	0	1	27
			8	2	7	0	0	7	6
			9	12	12	0	0	14	13
			10	5	15	0	0	6	4
			11	7	9	0	0	6	8
			12	10	11	0	0	2	10
			13	11	7	0	0	11	9
			14	9	18	0	0	7	3
			15	8	16	0	0	15	5
			16	18	7	0	0	13	4
			17	65	2	0	0	27	8
			18	23	3	0	0	10	2
			19	8	6	0	0	3	3
			20	9	4	0	0	4	1
			21	2	1	0	0	2	1
			22	1	4	0	0	1	6
			23	0	5	0	0	0	2
			24	0	1	0	0	2	1
		14	1	19	0	0	0	3	0
			2	1	0	0	0	0	1
			3	0	0	0	0	2	3
			4	0	1	0	0	0	3
			5	0	4	0	0	0	0
			6	0	43	0	0	0	9
			7	4	55	0	0	0	23
			8	4	18	0	0	3	12
			9	13	11	0	0	8	9
			10	10	11	0	0	4	6
			11	7	9	0	0	3	1

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	4	14	12	10	13	0	0	7	7
			13	6	12	0	0	4	6
			14	17	11	0	0	5	15
			15	12	16	0	0	8	8
			16	16	7	0	0	16	7
			17	79	5	0	0	29	6
			18	30	1	0	0	15	0
			19	9	1	0	0	10	2
			20	3	5	0	0	3	1
			21	0	0	0	0	1	2
			22	0	5	0	0	0	7
			23	3	8	0	0	0	3
			24	0	2	0	0	3	0
		15	1	12	1	0	0	6	0
			2	2	0	0	0	2	0
			3	0	0	0	0	1	0
			4	0	2	0	0	0	0
			5	0	3	0	0	0	0
			6	0	45	0	0	0	16
			7	3	53	0	0	2	27
			8	5	9	0	0	2	10
			9	19	12	0	0	10	9
			10	5	14	0	0	4	6
			11	2	13	0	0	7	9
			12	14	8	0	0	12	7
			13	17	5	0	0	5	7
			14	8	17	0	0	2	8
			15	18	15	0	0	6	2
			16	19	9	0	0	10	6
			17	73	7	0	0	31	2
			18	35	4	0	0	12	3
			19	3	7	0	0	5	1
			20	4	1	0	0	0	0
			21	1	2	0	0	1	0
			22	2	3	0	0	1	5
			23	3	5	0	0	0	3
			24	0	1	0	0	1	3
		16	1	20	3	0	0	6	5
			2	1	0	0	0	0	2
			3	0	0	0	0	3	1
			4	0	3	0	0	2	10
			5	0	2	0	0	1	3
			6	0	49	0	0	3	9
			7	3	62	0	0	4	39
			8	6	16	0	0	9	16

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	4	16	9	10	21	0	0	11	9
			10	11	6	0	0	10	4
			11	10	7	0	0	6	8
			12	9	8	0	0	5	4
			13	16	9	0	0	13	6
			14	9	13	0	0	8	7
			15	15	20	0	0	7	6
			16	26	5	0	0	8	7
			17	79	0	0	0	31	5
			18	21	7	0	0	10	4
			19	14	10	0	0	4	3
			20	6	5	0	0	7	1
			21	18	3	0	0	2	0
			22	3	0	0	0	2	4
			23	1	7	0	0	2	2
			24	1	1	0	0	1	0
		17	1	14	0	0	0	9	0
			2	3	0	0	0	0	0
			3	0	0	0	0	1	0
			4	0	1	0	0	0	0
			5	0	0	0	0	1	0
			6	0	5	0	0	0	12
			7	3	45	0	0	0	20
			8	4	8	0	0	3	7
			9	15	9	0	0	8	7
			10	8	5	0	0	8	11
			11	6	6	0	0	8	10
			12	13	7	0	0	3	4
			13	10	5	0	0	6	5
			14	12	16	0	0	3	6
			15	14	13	0	0	8	8
			16	11	8	0	0	5	5
			17	48	6	0	0	20	1
			18	17	6	0	0	10	3
			19	3	4	0	0	3	3
			20	3	2	0	0	4	1
			21	9	1	0	0	5	2
			22	4	2	0	0	0	7
			23	0	6	0	0	0	4
			24	2	1	0	0	1	0
		18	1	10	0	0	0	5	2
			2	2	1	0	0	1	0
			3	0	0	0	0	0	0
			4	0	1	0	0	0	0
			5	0	0	0	0	3	0

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	4	18	6	1	6	0	0	1	5
			7	0	19	0	0	1	14
			8	3	4	0	0	1	3
			9	9	5	0	0	5	2
			10	7	9	0	0	8	10
			11	6	2	0	0	11	8
			12	7	9	0	0	6	5
			13	7	4	0	0	5	2
			14	13	7	0	0	5	7
			15	5	10	0	0	5	14
			16	13	7	0	0	5	3
			17	21	3	0	0	10	11
			18	3	2	0	0	9	4
			19	13	5	0	0	7	1
			20	4	7	0	0	2	0
			21	1	1	0	0	2	0
			22	0	4	0	0	2	4
			23	0	7	0	0	0	4
			24	0	0	0	0	1	1
		19	1	12	2	0	0	2	0
			2	1	0	0	0	0	0
			3	2	1	0	0	1	0
			4	1	1	0	0	2	0
			5	0	0	0	0	2	0
			6	0	5	0	0	0	2
			7	0	12	0	0	0	10
			8	1	7	0	0	1	4
			9	15	7	0	0	5	3
			10	4	4	0	0	4	7
			11	4	4	0	0	3	4
			12	6	2	0	0	4	5
			13	3	4	0	0	4	6
			14	0	0	0	0	10	14
			15	0	0	0	0	7	5
			16	0	0	0	0	1	10
			17	0	0	0	0	9	3
			18	0	0	0	0	9	2
			19	0	0	0	0	4	2
			20	0	0	0	0	2	1
			21	0	0	0	0	2	0
			22	0	0	0	0	2	3
			23	0	0	0	0	0	3
			24	0	0	0	0	2	0
		20	1	0	0	0	0	5	0
			2	0	0	0	0	0	0

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	4	20	3	0	0	0	0	0	0
			4	0	0	0	0	0	3
			5	0	0	0	0	0	1
			6	0	0	0	0	0	9
			7	0	0	0	0	2	29
			8	0	0	0	0	6	7
			9	0	0	0	0	15	7
			10	0	0	0	0	8	10
			11	0	0	0	0	6	9
			12	0	0	0	0	2	9
			13	0	0	0	0	13	7
			14	0	0	0	0	5	4
			15	0	0	0	0	8	11
			16	0	0	0	0	8	5
			17	0	0	0	0	26	4
			18	0	0	0	0	14	6
			19	0	0	0	0	7	2
			20	0	0	0	0	3	1
			21	0	0	0	0	3	2
			22	0	0	0	0	1	2
			23	0	0	0	0	0	5
			24	0	0	0	0	2	0
		21	1	0	0	0	0	6	0
			2	0	0	0	0	2	0
			3	0	0	0	0	1	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	0	0	0	0	8
			7	0	0	0	0	0	23
			8	0	0	0	0	4	11
			9	0	0	0	0	9	6
			10	0	0	0	0	1	8
			11	0	0	0	0	4	12
			12	0	0	0	0	8	5
			13	0	0	0	0	3	3
			14	0	0	0	0	12	5
			15	0	0	0	0	6	18
			16	0	0	0	0	11	8
			17	0	0	0	0	22	2
			18	0	0	0	0	16	3
			19	0	0	0	0	9	1
			20	0	0	0	0	3	0
			21	0	0	0	0	1	3
			22	0	0	0	0	0	2
			23	0	0	0	0	0	6

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	OUT TRAFFIC	BT02 IN TRAFFIC	OUT TRAFFIC	BT03 IN TRAFFIC	OUT TRAFFIC
81	4	21	24	0	0	0	0	4	0
		22	1	0	0	0	0	6	0
			2	0	0	0	0	1	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	0	0	0	0	9
			7	0	0	0	0	0	30
			8	0	0	0	0	5	12
			9	0	0	0	0	8	10
			10	0	0	0	0	5	5
			11	0	0	0	0	6	10
			12	0	0	0	0	10	7
			13	0	0	0	0	6	2
			14	0	0	0	0	4	10
			15	0	0	0	0	6	9
			16	0	0	0	0	13	3
	5	4	16	0	0	0	0	0	0
			17	5	29	4	10	6	17
			18	8	39	4	13	4	13
			19	7	7	1	1	6	5
			20	3	7	1	2	8	6
			21	2	5	0	1	1	6
			22	6	5	0	2	0	2
			23	7	5	8	3	4	0
			24	1	13	0	10	2	7
		5	1	0	3	0	0	0	2
			2	0	1	0	0	0	0
			3	1	0	0	0	3	0
			4	0	3	0	0	0	1
			5	1	1	0	0	0	0
			6	12	0	1	1	0	0
			7	71	1	53	8	13	0
			8	37	13	15	12	17	9
			9	17	9	12	8	10	5
			10	12	8	8	4	10	0
			11	20	8	13	14	7	5
			12	12	17	9	12	6	2
			13	7	24	7	10	7	6
			14	10	19	10	14	6	8
			15	22	18	15	14	12	12
			16	8	47	4	45	5	12
			17	7	41	1	5	5	27
			18	5	23	1	10	2	11
			19	9	10	4	2	4	5

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	5	5	20	4	4	2	2	5	8
			21	2	14	1	2	3	4
			22	11	4	0	1	8	2
			23	11	3	14	2	9	0
			24	2	8	1	8	3	6
		6	1	3	4	1	2	0	4
			2	0	1	1	0	0	1
			3	2	0	0	1	1	0
			4	0	2	0	1	0	0
			5	1	0	0	0	2	0
			6	7	0	4	0	2	0
			7	75	1	56	9	11	1
			8	33	19	9	20	19	6
			9	14	10	11	9	11	4
			10	24	16	11	9	7	6
			11	20	6	14	7	9	2
			12	12	11	7	7	6	7
			13	10	18	6	13	10	9
			14	21	31	9	9	5	8
			15	14	49	17	8	10	12
			16	9	41	4	47	5	11
			17	2	29	4	11	4	14
			18	6	17	4	14	6	9
			19	6	17	4	4	4	5
			20	4	8	1	3	2	4
			21	2	4	0	2	4	4
			22	4	8	2	1	1	2
			23	12	0	6	4	2	1
			24	1	7	0	11	1	6
		7	1	0	3	0	0	0	2
			2	1	2	1	0	0	1
			3	2	0	0	0	0	1
			4	1	1	1	0	1	0
			5	1	0	0	0	0	1
			6	12	0	0	1	0	0
			7	78	1	66	3	13	1
			8	32	14	12	10	18	6
			9	29	14	9	7	13	3
			10	18	11	13	10	6	3
			11	23	16	6	6	13	7
			12	24	11	8	7	10	6
			13	12	25	6	8	7	9
			14	14	13	11	10	6	10
			15	30	28	22	19	11	7
			16	7	65	7	65	4	18

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	5	7	17	5	47	4	12	5	17
			18	6	40	4	15	4	21
			19	3	11	2	3	4	2
			20	6	9	3	2	3	6
			21	3	9	1	2	3	0
			22	6	3	0	2	4	4
			23	15	3	6	3	5	1
			24	2	11	1	10	3	4
		8	1	3	9	0	2	1	4
			2	0	0	0	0	0	0
			3	1	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	15	0	2	1	2	0
			7	84	3	64	3	8	0
			8	36	7	16	12	27	6
			9	9	11	8	7	7	7
			10	10	10	6	8	13	7
			11	10	10	3	6	8	12
			12	14	10	6	5	8	8
			13	8	11	7	9	3	11
			14	6	15	1	11	6	13
			15	17	13	13	8	6	11
			16	8	39	3	67	3	20
			17	10	59	1	8	9	15
			18	7	51	4	4	3	12
			19	6	21	2	1	4	2
			20	4	5	1	1	2	3
			21	3	6	1	3	3	2
			22	3	9	0	1	0	2
			23	5	1	9	5	4	2
			24	10	3	0	12	3	4
		9	1	1	11	0	1	1	4
			2	2	7	0	0	1	0
			3	0	1	0	0	1	2
			4	1	0	1	0	0	2
			5	2	0	0	0	0	0
			6	0	1	0	0	0	0
			7	5	0	19	3	4	0
			8	28	1	4	9	7	4
			9	7	9	5	3	3	4
			10	8	2	6	8	9	3
			11	7	10	0	0	7	6
			12	5	0	2	3	7	2
			13	7	21	0	3	9	6

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

YEAR	MONTH	DAY	HOUR	BT01 IN TRAFFIC	BT01 OUT TRAFFIC	BT02 IN TRAFFIC	BT02 OUT TRAFFIC	BT03 IN TRAFFIC	BT03 OUT TRAFFIC
81	5	9	14	2	4	5	3	5	0
			15	10	16	19	7	5	9
			16	24	12	1	23	5	11
			17	3	24	2	0	4	7
			18	6	20	2	3	2	4
			19	5	11	0	0	1	4
			20	8	6	0	2	3	5
			21	2	4	1	1	2	3
			22	4	4	0	0	0	2
			23	2	2	6	2	2	2
			24	7	1	1	14	4	4
		10	1	1	12	0	0	0	1
			2	0	1	0	0	1	0
			3	0	2	0	0	0	0
			4	1	0	1	1	1	0
			5	0	1	0	0	0	0
			6	0	0	0	0	1	0
			7	1	0	18	0	7	0
			8	20	1	1	8	5	2
			9	3	9	2	2	5	3
			10	5	5	3	0	2	3
			11	3	1	1	1	2	3
			12	3	4	2	2	2	6
			13	6	1	0	3	6	3
			14	4	3	2	1	5	6
			15	13	2	18	10	7	6
			16	14	6	1	15	7	4
			17	6	20	1	0	6	7
			18	3	7	3	2	1	3
			19	1	4	0	0	4	7
			20	4	7	0	1	6	3
			21	2	8	2	2	1	2
			22	3	10	0	1	0	2
			23	2	2	5	0	7	0
			24	8	1	1	11	0	3
		11	1	0	7	1	1	0	2
			2	2	0	1	0	0	0
			3	2	1	0	0	1	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	0	2	0	3	0
			7	15	1	60	7	15	7
			8	83	1	16	12	23	7
			9	29	7	6	5	10	7
			10	13	4	9	6	8	4

Table 3.4-3 (cont.)

TRAFFIC DATA
FOR DEC 1980 TO MAY 1981

				BT01		BT02		BT03	
YEAR	MONTH	DAY	HOUR	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC	IN TRAFFIC	OUT TRAFFIC
81	5	11	11	13	16	4	7	3	8
			12	13	11	2	5	10	5
			13	14	14	10	7	3	11
			14	14	13	4	11	5	7
			15	21	12	19	7	7	8
			16	20	11	6	58	0	0
			17	7	47	2	8	0	0
			18	5	49	1	15	0	0
			19	0	0	3	2	0	0
			20	0	0	0	1	0	0
			21	0	0	0	0	0	0
			22	0	0	0	2	0	0
			23	0	0	7	7	0	0
			24	0	0	2	12	0	0
		12	1	0	0	0	0	0	0
			2	0	0	0	0	0	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	0	2	0	0	0
			7	0	0	56	9	0	0
			8	0	0	7	8	0	0
			9	0	0	7	2	0	0
			10	0	0	12	5	0	0
			11	0	0	11	13	0	0
			12	0	0	9	11	0	0
			13	0	0	8	10	0	0
			14	0	0	9	11	0	0
			15	0	0	14	9	0	0
			16	0	0	4	44	0	0
			17	0	0	8	9	0	0
			18	0	0	2	14	0	0
			19	0	0	1	0	0	0
			20	0	0	3	1	0	0
			21	0	0	0	2	0	0
			22	0	0	0	1	0	0
			23	0	0	11	3	0	0
			24	0	0	1	14	0	0
		13	1	0	0	0	0	0	0
			2	0	0	1	0	0	0
			3	0	0	0	0	0	0
			4	0	0	0	0	0	0
			5	0	0	0	0	0	0
			6	0	0	2	1	0	0
			7	0	0	52	5	0	0
			8	0	0	10	14	0	0

3.5 Geology

The surface geology report was presented in Quarterly Data Report #5 and in the Annual Summary and Trends Report.

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4.0 Data Automation

The enviromental data base at present is partially manual and partially computerized. For purposes of analysis, data specificity, data security, and data archiving, the data base is being further computerized. It is the intent that all "indicator variables" be entered into RAMIS (Rapid Access Management Information System). Toward this end computer codes have been designed for all environmental station locations.

This section presents the status of automated data base, station location data, and a cross-reference list of four-digit computer codes and station monitoring codes.

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4.1 Automation Status

This section presents the status of the automated data base for the C-b Tract environmental data on the Occidental Petroleum Corporation computer system in Houston, Texas.

RAMIS II is a computerized data base management system (DBMS) used by Occidental Oil Shale, Inc. on the C-b Shale Oil Project via the Occidental Computer Center in Houston, Texas. C-b Shale Oil Tract environmental data are being prepared and entered into RAMIS DBMS as a means of making relevant data available for subsequent retrievals for use in reports and impact analyses. The use of this system provides an economical way to store and retrieve selected data in desired formats for reports and for input to analytic models requiring the data. Data are also archived within this system and through magnetic tapes containing the source raw data.

The following environmental data are entered into RAMIS DBMS as of May 1981.

Water Quality	
Springs and Seeps	October 1974 thru May 1981
Alluvial Wells	October 1974 thru May 1981
Upper Aquifer Wells	October 1974 thru May 1981
Lower Aquifer Wells	October 1974 thru May 1981
Wells Water Levels	
Water Levels	October 1974 thru May 1981
Water Augmentation Plan	
Springs and Seeps	July 1979 thru May 1981
Upper Aquifer Wells	August 1979 thru May 1981
Lower Aquifer Wells	August 1979 thru May 1981
Precipitation	January 1979 thru May 1981
National Pollutant Discharge Elimination System	
Water Quality Data	July 1979 thru May 1981
Water Usage	June 1980 thru November 1980
Well Reinjection	March 1981 thru May 1981
Air Quality	
Small Trailer (Station AD42, AD56)	October 1974 thru April 1981
Large Trailer (Station AB20)	October 1974 thru April 1981
Large Trailer (Station AB23)	October 1974 thru May 1981
Meteorological Tower (Station AA23)	October 1974 thru May 1981
Traffic	February 1980 thru May 1981

4.1 Automation Status (Continued)

Biology

Microclimate	October 1974 thru May 1981
Deer Kill	October 1977 thru May 1981
Deer Count	September 1977 thru May 1981
Avifauna	1977 thru 1980

The status for the files are shown graphically in figures 4.1-1 through 4.1-9. File descriptions for the 20 files that reside in the RAMIS data base are shown in Tables 4.1-1 through 4.1-20.

Data collected and analyzed by USGS for stream flow and stream water quality are stored in government computer data bases in Reston, Virginia. These data bases (WATSTOR) and (NAWDEX) are accessed by dialing computer communications for retrievals of data to the Occidental Grand Junction computers for printing and analyses.

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Figure 4.1-1

WATER QUALITY MONITORING/DATABASE STATUS
ALLUVIAL WELLS

LOC	YR 80 MO 2	4	5	7	8
WA01	X	X		X	
WA02	X	X		X	
WA03	X	X		X	
WA05	X		X	X	
WA06	X		X	X	
WA07				X	
WA08			X	X	
WA09	X	X		X	
WA12		X		X	
WA56					X

WATER QUALITY MONITORING/DATABASE STATUS
SPRINGS AND SEEPS

LOC	YR 80 MO 1	4	7	10	81 1	4
WS01	X	X	X	X	X	X
WS02	X	X	X	X	X	X
WS03	X	X	X	X	X	X
WS04	X	X	X	X	X	X
WS06	X	X	X	X	X	X
WS07	X	X	X	X	X	X
WS08	X	X	X			X
WS09	X	X	X	X	X	X
WS10	X	X	X	X	X	X
WS11			X	X	X	X
WS12			X	X	X	X
WS36		X	X	X	X	X
WS66			X			

WATER QUALITY MONITORING/DATABASE STATUS
SHAFT MONITORING WELLS

LOC	YR 80 MO 1	2	3	4	5	6	7	8	9	10	11
WW12	X	X	X	X	X	X	X	X	X	X	X
WW13	X	X	X	X	X	X	X	X	X	X	X

Figure 4.1-1 (cont.)

WATER QUALITY MONITORING/DATABASE STATUS
DEEP WELLS

YR	80											81			
MO	1	2	3	4	5	6	7	8	10	11	12	1	2	3	4
LOC															
WG10	X					X									
WI18								X							
WU42	X	X	X	X	X	X	X		X	X	X	X	X	X	X
WX02						X									
WX04						X									
WX14								X							
WX18						X									
WX21						X									
WX32		X													
WX33		X													
WX55						X									
WX82						X									
WX92						X									
WY01					X										
WY12					X										
WY17						X									
WY45						X									
WY46						X									
WY54						X									
WY81						X									
WY91					X										

WATER QUALITY MONITORING/DATABASE STATUS
V/E SHAFT WATER QUALITY

YEAR	80							
MONTH	1	2	3	4	5	6	7	9
LOCATION								
WZ01	X	X		X	X	X	X	X
WZ02			X			X		
WZ03	X			X				X

WATER QUALITY MONITORING/DATABASE STATUS
NPDES WATER QUALITY

YEAR	80												81				
MONTH	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
LOCATION																	
WN40	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WN41											X	X	X	X	X	X	X
WN42											X	X	X	X	X	X	X
WU02														X			X
WU42															X	X	

Figure 4.1-1 (cont.)

```
WATER QUALITY MONITORING/DATABASE STATUS
 SEMI-ANNUAL NPDES


               YEAR
               80
               MONTH
                1    6   12
 LOCATION
-----------------------
 WN40          X    X    X
```

Figure 4.1-2

HYDROLOGY MONITORING/DATABASE STATUS
SPRING FLOWS

```
       YR
       80                                                          81
       MO
        1    2    3    4    5    6    7    8    9   10   11   12    1    2    3    4    5
LOC
-----------------------------------------------------------------------------------------
WS01    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS02    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS03    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS04    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS06    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS07    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS08    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS09    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS10    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS11                   X    X    X    X    X    X    X    X    X    X    X    X    X
WS12                             X    X    X    X    X    X    X    X    X    X    X
WS21    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS22    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS23    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS24    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS25    X    X    X         X    X    X    X    X    X    X    X    X    X         X    X
WS26    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS27    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS28    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS29    X    X    X         X    X    X    X    X    X    X    X    X    X    X    X    X
WS30    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS31    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS32    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS33    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS34    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS35    X    X    X    X    X    X    X    X    X    X    X    X    X    X         X    X
WS36         X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WS66                                                                 X
```

Figure 4.1-3

HYDROLOGY MONITORING/DATABASE STATUS
WELL LEVELS

YR	80												81				
MO	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5
LOC																	
MW12															X	X	
MW13															X	X	
WA01	X	X		X	X		X	X		X	X		X	X	X		
WA02	X	X		X	X	X	X	X		X	X		X	X	X		
WA03	X	X		X	X	X	X	X		X	X		X	X	X		
WA04	X	X		X	X	X	X	X		X	X		X	X	X		
WA05	X	X	X		X		X	X		X	X		X	X	X		
WA06	X	X		X	X		X	X		X	X		X	X	X		
WA07	X	X		X			X	X		X	X		X	X	X		
WA08	X	X	X	X	X		X	X		X	X	X	X	X	X		
WA09	X	X		X	X		X	X		X	X	X	X	X	X		
WA10	X	X		X			X			X	X	X	X	X	X		
WA11		X		X			X	X		X	X	X	X	X	X		
WA12	X	X	X	X	X		X	X		X	X	X	X	X	X		
WA13	X	X		X			X	X			X	X	X	X	X		
WA55	X	X			X		X		X	X	X			X	X		
WA56									X	X			X	X	X		
WC17												X	X	X	X	X	X
WC91												X	X	X	X	X	X
WD01											X	X	X	X	X	X	X
WD02											X	X	X	X	X	X	X
WD10			X		X		X	X	X	X							
WD11												X		X	X	X	X
WD12												X		X	X	X	X
WD14													X	X	X	X	X
WD15													X	X	X	X	X
WD17												X	X	X	X	X	X
WD18												X	X	X	X	X	X
WD19												X	X	X	X	X	X
WD20												X	X	X	X	X	X
WD21												X	X	X	X	X	X
WD41													X	X	X	X	X
WD51												X	X	X	X		X
WD52												X	X	X	X	X	X
WD57											X	X	X	X	X	X	X
WD61												X	X	X	X	X	X
WD90												X		X	X	X	X
WD91												X	X	X	X	X	X
WE03											X	X	X	X	X	X	X
WE04											X	X	X	X	X	X	X
WE10		X	X	X	X		X	X	X	X							
WE11												X	X	X	X	X	X
WE17												X	X	X	X	X	X

Figure 4.1-3 (cont.)

HYDROLOGY MONITORING/DATABASE STATUS
WELL LEVELS

```
         YR
         80                                                          81
         MO
          1    2    3    4    5    6    7    8    9   10   11   12    1    2    3    4    5
LOC
-------------------------------------------------------------------------------------------
WE18                                                         X    X    X    X    X    X
WE20                                                         X    X    X    X    X
WE21                                                         X    X    X    X    X    X
WE41                                                                                  X
WE51                                                         X    X    X    X    X    X
WE52                                                         X    X    X    X    X    X
WE61                                                         X    X    X    X    X    X
WE91                                                         X    X    X    X    X    X
WG10           X    X    X    X         X    X    X    X
WG12                                                         X         X    X    X    X
WG17                                                         X    X    X    X    X    X
WG18                                                         X    X    X    X    X    X
WG20                                                         X    X    X
WG21                                                         X    X    X    X    X    X
WG41                                                              X    X    X    X    X
WG51                                                         X    X    X    X    X    X
WG52                                                         X    X    X    X    X    X
WG61                                                         X    X    X    X    X    X
WG91                                                         X    X    X    X    X    X
WH21                                                         X    X    X    X    X    X
WV01      X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WV02      X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WV03      X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WV04      X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WV05      X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WV37                                                              X    X    X    X    X
WW12      X    X    X    X    X    X    X    X    X    X    X
WW13      X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X    X
WW22                                                    X    X    X    X    X    X    X
WX01                                               X
WX02      X    X    X    X    X         X    X    X
WX04      X    X    X              X    X    X    X
WX10      X
WX11                                X
WX12      X    X    X    X    X    X    X    X    X
WX14                                     X    X
WX17      X    X    X         X    X    X    X    X
WX18      X    X    X    X    X    X    X         X
WX19      X    X    X    X    X         X         X    X    X
WX20      X    X    X    X    X         X    X         X    X
WX21      X    X    X    X    X    X         X    X
WX32                          X    X    X    X    X    X    X    X    X    X    X    X    X
WX33                          X    X    X    X    X    X    X
```

Figure 4.1-3 (cont.)

HYDROLOGY MONITORING/DATABASE STATUS
WELL LEVELS

	YR 80 MO 1	2	3	4	5	6	7	8	9	10	11	12	81 1	2	3	4	5
LOC																	
WX38													X	X	X	X	X
WX41		X															
WX44	X	X	X	X	X		X	X	X			X	X	X	X	X	X
WX55	X	X		X	X		X	X	X								
WX63	X	X	X	X	X		X	X	X	X							
WX64	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX65	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX67	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX69	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX71	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX72	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX73	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX75	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WX79				X													
WX92	X	X	X	X	X	X		X	X								
WY01	X	X	X	X	X	X	X	X	X	X							
WY03	X	X															
WY12	X	X	X	X	X	X	X	X	X								
WY17	X	X	X		X	X	X	X	X								
WY44													X	X	X	X	X
WY45	X	X	X	X	X		X	X	X			X	X	X	X	X	X
WY46	X	X	X	X	X		X	X	X			X	X	X	X	X	X
WY52	X	X		X	X		X	X	X								
WY54	X	X		X	X		X	X	X								
WY61	X	X	X	X	X		X	X	X	X							
WY62	X	X	X	X	X		X	X	X	X							
WY64	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY65	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY66	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY67	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY68	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY69	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY70	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY71	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY72	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY75	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY76	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY77	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY78	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WY79	X	X	X		X	X	X	X	X								
WY81	X												X	X			
WY91	X	X	X	X	X	X		X	X								

Figure 4.1-3 (cont.)

```
PAGE 1

CONTINUOUS WELL LEVEL MONITORING/DATABASE STXTUS
                LOCXTION
YEXR MONTH DAY  WA01 WA02 WA03 WA05 WA06 WA07 WA08 WA09 WA12 WX12 WX17 WX19 WX20 WX33 WX92 WY12 WY17 WY91
80     1     1  X    X    X    X         X
             2  X    X    X    X         X
             3  X    X         X         X              X
             4  X    X         X         X              X
             5  X    X         X         X              X
             6  X    X         X         X              X
             7  X    X         X         X              X                                            X
             8  X    X         X         X              X                             X              X
             9  X    X         X         X              X                             X              X
            10  X    X         X         X              X                             X              X
            11  X    X         X         X              X                             X              X
            12  X    X         X         X              X                             X              X
            13  X    X         X         X              X                             X              X
            14  X    X         X         X              X                             X              X
            15  X    X         X         X              X                             X              X
            16  X    X         X         X              X                             X              X
            17  X    X         X         X              X                             X              X
            18  X    X         X         X              X                             X              X
            19  X    X         X         X              X                             X              X
            20  X    X         X         X              X                             X              X
            21  X    X         X         X              X                             X              X
            22  X    X         X         X              X
            23  X    X         X         X              X         X                             X
            24  X    X         X         X              X         X                             X
            25  X    X         X         X              X         X                   X         X    X
            26  X    X         X         X              X         X                   X         X    X
            27  X    X         X         X              X         X                   X         X    X
            28  X    X         X         X              X         X                   X         X    X
            29  X    X         X         X              X         X                   X         X    X
            30  X    X         X         X              X         X                   X         X    X
            31  X    X         X         X              X         X                   X         X    X
       2     1  X    X         X         X              X         X                   X         X    X
             2  X    X         X         X              X         X                   X         X    X
             3  X    X         X         X              X         X                   X         X    X
             4  X    X         X         X              X         X                   X         X    X
             5  X    X         X         X              X         X                   X         X    X
             6  X    X         X         X              X         X                   X         X    X
             7  X    X         X         X              X         X                   X         X    X
             8  X    X         X         X              X         X                   X         X    X
             9  X    X         X         X              X         X                   X         X    X
            10  X    X         X         X              X         X                   X         X    X
            11  X    X         X         X              X         X                   X         X    X
            12  X    X         X    X                   X         X                   X         X    X
            13  X    X         X    X                   X         X                   X         X    X
            14  X    X         X    X              X    X         X                   X         X    X
            15  X    X         X    X              X    X         X                   X         X    X
            16  X    X         X    X              X    X         X                   X         X    X
       2    17  X    X         X    X              X    X         X                   X         X    X
            18  X    X         X    X              X    X         X                   X         X    X
            19  X    X         X    X              X    X         X                   X         X    X
            20  X    X         X    X              X    X         X                   X         X    X
            21  X    X         X    X              X    X         X                   X         X    X
            22  X    X         X    X              X    X         X                   X         X    X
            23  X    X         X    X              X    X         X                   X         X    X
            24  X    X         X    X              X    X         X                   X         X    X
            25  X    X         X    X              X    X         X                   X         X    X
            26  X    X         X    X              X    X         X                   X         X
            27  X    X         X    X              X    X                             X
            28  X    X         X    X              X    X                             X
            29  X    X         X    X              X    X                             X
       3     1  X    X         X    X              X    X
             2  X    X         X    X              X    X
             3  X    X         X    X              X    X
             4  X    X         X    X              X    X
             5  X    X         X    X              X    X
             6  X    X         X    X              X    X
             7  X    X         X    X              X    X
             8  X    X         X    X              X    X
             9  X    X         X    X              X    X
            10  X    X              X              X    X    X                             X
            11  X    X              X              X    X    X                             X
            12  X    X              X              X    X    X                             X
            13  X    X              X              X    X    X                             X
            14  X    X         X    X              X    X    X                             X
            15  X    X         X    X              X    X    X                             X
            16  X    X              X              X    X    X                             X
            17  X    X              X              X    X    X                             X
            18  X    X              X              X    X    X                             X
            19  X    X         X    X              X    X    X                             X
            20  X    X         X    X              X    X    X                             X
            21  X    X         X    X              X    X    X                             X
            22  X    X              X              X    X    X                             X
            23  X    X              X              X    X    X                             X
            24  X    X              X              X    X    X                             X
            25  X    X         X    X              X    X    X                             X
            26  X    X         X    X              X    X    X                             X
            27  X    X         X    X              X    X    X                             X
            28  X    X         X    X              X    X    X              X              X
            29  X    X         X    X              X    X    X              X              X
            30  X    X         X    X              X    X    X              X              X
            31  X    X         X    X              X    X    X              X              X
       4     1  X    X         X    X              X    X    X              X              X
             2  X              X    X              X    X    X              X              X
             3  X              X    X              X    X    X              X              X
       4     4  X              X    X              X    X    X              X              X
             5  X              X    X              X    X    X              X              X
             6  X              X    X              X    X    X              X              X
             7  X                   X              X    X    X              X              X
             8  X                   X              X    X    X              X              X
             9  X                   X              X    X    X              X              X
            10  X                   X              X    X    X              X              X
            11  X                   X              X    X    X              X              X
            12  X                   X              X    X    X              X              X
            13  X                   X              X    X    X              X              X
            14  X                   X              X    X    X              X              X
            15  X                   X              X    X    X              X              X
            16  X                   X              X    X    X              X              X
            17  X                   X              X    X    X              X              X
            18  X                   X              X    X    X              X              X
            19  X                   X              X    X    X              X              X
            20  X                   X              X    X    X              X              X
            21  X                   X              X    X    X              X              X
            22  X                   X              X    X    X              X              X
            23  X                   X              X    X    X              X              X
            24  X                   X              X    X    X         X                   X
            25  X                   X              X    X    X         X                   X
            26  X                   X              X    X    X         X                   X
            27  X                   X              X    X    X         X                   X
            28  X                   X              X    X    X         X                   X
            29  X    X              X              X    X    X         X                   X
            30  X    X              X              X    X    X         X                   X
       5     1  X    X              X         X         X    X         X    X              X
             2  X    X              X         X         X    X         X    X              X
             3  X    X              X         X         X    X         X    X              X
             4  X    X              X         X         X    X         X    X              X
             5  X    X              X         X         X    X         X    X              X
             6  X    X              X         X         X    X         X    X              X
             7  X    X              X         X         X    X         X    X              X
             8  X    X              X         X         X    X         X    X              X
             9  X    X              X         X         X    X         X    X              X
            10  X    X              X         X         X    X         X    X              X
            11  X    X              X         X         X    X         X    X              X
            12  X    X              X         X         X    X         X    X              X
            13  X    X              X         X         X    X         X    X              X
            14  X    X              X         X         X    X         X    X              X
            15  X    X         X    X         X         X    X         X    X              X
            16  X    X         X    X         X         X    X         X    X              X
            17  X    X         X    X         X         X    X         X    X              X
            18  X    X         X    X         X         X    X         X    X              X
            19  X    X         X    X         X         X    X         X    X              X
            20  X    X         X    X         X         X    X         X    X              X
```

Figure 4.1-3 (cont.)

```
                                          CONTINUOUS WELL LEVEL MONITORING/DATABASE STATUS
                  LOCATION
YEAR  MONTH  DAY  WA01  WA02  WA03  WA05  WA06  WA07  WA08  WA09  WA12  WX12  WX17  WX19  WX20  WX33  WX92  WY12  WY17  WY91
-------------------------------------------------------------------------------------------------------------------------------
 80      5    21  X     X           X     X           X           X                       X                 X
              22  X     X           X     X           X           X                       X                 X
              23  X     X           X     X           X           X                       X                 X
              24  X     X           X     X           X           X                       X                 X
              25  X     X           X     X           X           X                       X                 X
              26  X     X           X     X           X           X                       X                 X
              27  X     X           X     X           X           X                       X                 X
              28  X     X           X     X           X           X                       X                 X
              29  X     X           X     X           X           X                       X                 X
              30  X     X           X     X           X           X                       X                 X
              31  X     X           X     X           X           X                       X
         6     1  X     X           X     X           X                                   X
               2  X     X           X     X           X                                   X
               3  X     X           X     X           X                                   X
               4  X     X           X     X           X                                   X
               5  X     X           X     X           X                                   X
               6  X     X           X     X           X                                   X
               7  X     X           X     X           X                                   X
               8  X     X           X     X           X                                   X
               9  X     X           X     X           X                                   X
              10  X     X           X     X           X                                   X
              11  X     X           X     X           X                                   X
              12  X     X           X     X           X                                   X
              13  X     X           X     X           X                                   X
              14  X     X           X     X           X                                   X
              15  X     X           X     X           X                                   X
              16  X     X           X     X           X                                   X
              17  X     X           X     X           X                                   X
              18  X     X           X     X           X                                   X
              19  X     X           X     X           X                             X     X
              20  X     X           X     X           X                             X     X
              21  X     X           X     X           X                             X     X
              22  X     X           X     X           X                             X     X
              23  X     X           X     X           X                             X     X
              24  X     X           X     X           X                             X     X
              25  X     X           X     X           X                             X     X
              26  X     X           X     X           X                             X     X
              27  X     X           X     X           X                             X     X
              28  X     X           X     X           X                             X     X
              29  X     X           X     X           X                             X     X
              30  X     X     X     X     X           X                 X           X     X                 X
         7     1  X     X     X     X     X           X     X           X           X     X                 X
               2  X     X     X     X     X           X     X           X           X     X                 X
               3  X     X     X     X     X           X     X           X           X     X                 X
               4  X     X     X     X     X           X     X           X           X     X                 X
               5  X     X     X     X     X           X     X           X           X     X                 X
               6  X     X     X     X     X           X     X           X           X     X                 X
         7     7  X     X     X     X     X           X     X           X           X     X                 X
               8  X     X     X     X     X           X     X           X           X     X                 X
               9  X     X     X     X     X           X     X           X           X     X                 X
              10  X     X     X     X     X           X     X           X           X     X                 X
              11  X     X     X     X     X           X     X           X           X     X                 X
              12  X     X     X     X     X           X     X           X           X     X                 X
              13  X     X     X     X     X           X     X           X           X     X                 X
              14  X     X     X     X     X           X     X           X           X     X                 X
              15  X     X     X     X     X           X     X           X           X     X                 X
              16  X     X     X     X     X           X     X           X           X     X                 X
              17  X     X     X     X     X           X     X           X           X     X                 X
              18  X     X     X     X     X           X     X           X           X     X                 X
              19  X     X     X     X     X           X     X           X           X     X                 X
              20  X     X     X     X     X           X     X           X           X     X                 X
              21  X     X     X     X     X           X     X           X           X     X                 X
              22  X     X     X     X     X           X     X           X           X     X                 X
              23  X     X     X     X     X           X     X           X           X     X                 X
              24  X     X     X     X     X           X     X           X           X     X                 X
              25  X     X     X     X     X           X     X           X           X     X                 X
              26  X     X     X     X     X           X     X           X           X     X                 X
              27  X     X     X     X     X           X     X           X           X     X                 X
              28  X     X     X     X     X           X     X           X           X     X                 X
              29  X     X     X     X     X           X     X     X     X           X     X                 X
              30  X     X     X     X     X           X     X     X     X           X     X                 X
              31  X     X     X           X           X     X     X     X           X     X                 X
         8     1  X     X     X           X           X     X     X     X           X     X                 X
               2  X     X     X           X           X     X     X     X           X     X                 X
               3  X     X     X           X           X     X     X     X           X     X                 X
               4  X     X     X           X           X     X     X     X           X     X                 X
               5  X     X     X           X           X     X     X     X           X     X                 X
               6  X     X     X           X           X     X     X     X           X     X                 X
               7  X     X     X           X           X     X     X     X           X     X                 X
               8  X     X     X           X           X     X     X     X           X     X                 X
               9  X     X     X           X           X     X     X     X           X     X                 X
              10  X     X     X           X           X     X     X     X           X     X                 X
              11  X     X     X           X           X     X     X     X           X     X                 X
              12  X     X     X           X           X     X     X     X           X     X                 X
              13  X     X     X           X           X     X     X     X           X     X                 X
              14  X     X     X           X           X     X     X     X           X     X                 X
              15  X     X     X           X           X     X     X     X           X     X     X           X
              16  X     X     X           X           X     X     X     X           X     X     X           X
              17  X     X     X           X           X     X     X     X           X     X     X           X
              18  X     X     X           X           X     X     X     X           X     X     X           X
              19  X     X     X           X           X     X     X     X           X     X     X           X
              20  X     X     X           X           X     X     X     X           X     X     X           X
              21  X     X     X           X           X     X     X     X           X     X     X           X
              22  X     X     X           X           X     X     X     X           X     X     X           X
         8    23  X     X     X           X           X     X     X     X           X     X     X           X
              24  X     X     X           X           X     X     X     X           X     X     X           X
              25  X     X     X           X           X     X     X     X           X     X     X           X
              26  X     X     X           X           X     X     X     X           X     X                 X
              27  X     X     X           X           X     X     X     X                 X                 X
              28  X     X     X           X           X     X     X     X                 X     X           X
              29  X     X                 X           X     X     X     X                 X     X           X
              30  X     X                 X                 X     X     X                 X     X           X
              31  X     X                 X                 X     X     X                 X     X           X
         9     1  X     X                 X                 X     X     X                 X     X           X
               2  X     X                 X                 X     X     X                 X     X           X
               3  X     X                 X                 X     X     X                 X     X           X
               4  X     X                 X                 X     X     X                 X     X           X
               5  X     X                 X                 X     X     X           X     X     X           X
               6  X     X                 X                 X     X     X           X     X     X           X
               7  X     X                 X                 X     X     X           X     X     X           X
               8  X     X                 X                 X     X     X           X     X     X           X
               9  X     X                 X                 X     X                 X     X     X           X
              10  X     X                 X                 X     X                 X     X     X
              11  X     X                 X                 X     X                 X     X     X
              12  X     X                 X                 X     X                 X     X     X
              13  X     X                 X                 X     X                 X     X     X
              14  X     X                 X                 X     X                 X     X     X
              15  X     X                 X                 X     X                 X     X     X
              16  X     X                 X                 X     X                 X     X     X
              17  X     X                 X                 X     X                 X     X     X
              18  X     X                 X                 X     X                 X     X     X
              19  X     X                 X                 X     X                 X     X     X
              20  X     X                 X                 X     X                 X     X     X
              21  X     X                 X                 X     X                 X     X     X
              22  X     X                 X                 X     X                 X     X     X
              23  X     X                 X                 X     X                 X     X     X
              24  X     X                 X                 X     X                 X           X
              25  X     X                 X                 X     X                 X           X
              26  X     X                 X                 X     X                 X           X
              27  X     X                 X                 X     X                 X           X
              28  X     X                 X                 X     X                 X           X
              29  X     X                 X                 X     X                 X           X
              30  X     X                 X                 X     X                 X           X
        10     1  X     X                 X                 X     X                 X           X
               2        X                 X                 X     X                 X           X
               3                          X                 X     X                 X           X
               4                          X                 X     X                             X
               5                                            X     X                             X
               6                                            X     X                             X
               7                                            X     X                             X
               8                                            X     X                             X
        10     9                                            X     X                             X
              10                                            X     X
              11                                            X     X
              12                                            X     X
              13                                            X     X
```

Figure 4.1-4

WELL REINJECTION LEVELS/DATABASE STATUS

YR
R1
MO

CODE	3	4	5	5
RPSI	X	X	X	X
C201	X	X	X	X
FLOW	X	X	X	X
TPSI	X	X	X	X
WC17	X	X	X	X
WC91	X	X	X	X
WD01	X	X	X	X
WD02	X	X	X	X
WD11	X	X	X	X
WD12	X	X	X	X
WD14	X	X	X	X
WD15	X	X	X	X
WD17	X	X	X	X
WD18	X	X	X	X
WD19	X	X	X	X
WD20	X	X	X	X
WD21	X	X	X	X
WD41	X	X	X	X
WD51	X	X	X	
WD52	X	X	X	X
WD57	X	X	X	X
WD61	X	X	X	X
WD90	X	X	X	X
WD91	X	X	X	X
WE03	X	X	X	X
WE04	X	X	X	X
WE11	X	X	X	X
WE17	X	X	X	X
WE18	X	X	X	X
WE20	X	X	X	X
WE21	X	X	X	X
WE41			X	X
WE51	X	X	X	X
WE52	X	X	X	X
WE61	X	X	X	X
WE91	X	X	X	X
WG12	X	X	X	X
WG17	X	X	X	X
WG18	X	X	X	X
WG21	X	X	X	X
WG41	X	X	X	X
WG51	X	X	X	X
WG52	X	X	X	X
WG61	X	X	X	X
WG91	X	X	X	X
WH21	X	X	X	X
WV37	X	X	X	X
WV40			X	X
WW13	X	X	X	X
WW22	X	X	X	X
WX32	X	X	X	X
WX33	X	X	X	X
WX44	X	X	X	X
WY44	X	X	X	X
WY45	X	X	X	X
WY46	X	X	X	X
WY61	X	X	X	X

Figure 4.1-5

AIR QUALITY AND METEOROLOGY

		TRAILER 20	TRAILER 23
YEAR	MONTH		
79	11	X	X
	12	X	X
80	1	X	X
	10	X	X
	11	X	X
	12	X	X
	2	X	X
	3	X	X
	4	X	X
	5	X	X
	6	X	X
	7	X	X
	8	X	X
	9	X	X
81	1	X	X
	2	X	X
	3	X	X
	4	X	X
	5	X	X

METEOROLOGICAL TOWER

		TOWER 123
YEAR	MONTH	
79	11	X
	12	X
80	1	X
	10	X
	11	X
	12	X
	2	X
	3	X
	4	X
	5	X
	6	X
	7	X
	8	X
	9	X
81	1	X
	2	X
	3	X
	4	X
	5	X

ACOUSTIC RADAR

		TRAILER 20
YEAR	MONTH	
79	11	X
	12	X
80	1	X
	10	X
	11	X
	12	X
	2	X
	3	X
	4	X
	5	X
	6	X
	7	X
	8	X
	9	X
81	1	X
	2	X
	3	X
	4	X
	5	X

Figure 4.1-5 (cont.)

EVAPORATION DATA

YEAR	MONTH	DAY	TRAILER AB23
80	9	5	X
		6	X
		7	X
		8	X
		10	X
		11	X
		12	X
		16	X
		17	X
		18	X
		19	X
		20	X
		21	X
		22	X
		23	X
		24	X
		26	X
		27	X
		28	X
		29	X
	10	1	X
		2	X
		3	X
		6	X
		7	X
		8	X
		9	X
		13	X
		14	X
		15	X
	11	1	X

VISUAL RANGE

YEAR	MONTH	DAY	TRAILER AREA
80	1	1	X
	2	1	X
	3	1	X
	4	1	X
	5	4	X
		10	X
		16	X
		22	X
	6	3	X
		9	X
		15	X
		21	X
		27	X
	7	3	X
	8	1	X
	9	1	X
	10	1	X
		7	X
		13	X
		19	X
	11	6	X
		12	X
		18	X
		30	X
	12	1	X

Figure 4.1-5 (cont.)

```
               SUSPENDED PARTICULATES

                              TRAILER
                           020     023      056
YEAR   MONTH   DAY
-------------------------------------------------
80      1        2          X       X        X
                 5          X       X        X
                 8          X       X        X
                11          X       X        X
                14          X       X        X
                17          X       X        X
                20          X       X        X
                23          X       X        X
                26          X       X        X
                29          X       X        X
        2        1          X       X        X
                 4          X       X        X
                 7          X       X        X
                10          X       X        X
                13          X       X        X
                16          X       X        X
                19          X       X        X
                22          X       X        X
                25          X       X        X
                28          X       X        X
        3        2          X       X        X
                 5          X       X        X
                 8          X       X        X
                11          X       X        X
                14          X       X        X
                17          X       X        X
                20          X       X        X
                23          X       X        X
                26          X       X        X
                29          X       X        X
        4        1          X       X        X
                 4          X       X        X
                 7          X       X        X
                10          X       X        X
                13          X       X        X
                16          X       X        X
                19          X       X        X
                22          X       X        X
                25          X       X        X
                28          X       X        X
        5        1          X       X        X
                 4          X       X        X
                 7          X       X        X
                10          X       X        X
                13          X       X        X
                16          X       X        X
                19          X       X        X
80      5       22          X       X        X
                25          X       X        X
                28          X       X        X
                31          X       X        X
        6        3          X       X        X
                 6          X       X        X
                 9          X       X        X
                12          X       X        X
                15          X       X        X
                18          X       X        X
                21          X       X        X
                24          X       X        X
                27          X       X        X
                30          X       X        X
        7        3          X       X        X
                 6          X       X        X
                 9          X       X        X
                12          X       X        X
                15          X       X        X
                18          X       X        X
                21          X       X        X
                24          X       X        X
                27          X       X        X
                30          X       X        X
        8        2          X       X        X
                 5          X       X        X
                 8          X       X        X
                11          X       X        X
                14          X       X        X
                17          X       X        X
                20          X       X        X
                23          X       X        X
                26          X       X        X
                29          X       X        X
        9        1          X       X        X
                 4          X       X        X
                 7          X       X        X
                10          X       X        X
                13          X       X        X
                16          X       X        X
                19          X       X        X
                22          X       X        X
                25          X       X        X
                28          X       X        X
       10        1          X       X        X
                 4          X       X        X
                 7          X       X        X
80     10       10          X       X        X
                13          X       X        X
                16          X       X        X
                19          X       X        X
                22          X       X        X
                25          X       X        X
                28          X       X        X
                31          X       X        X
       11        3          X       X        X
                 6          X       X        X
                 9          X       X        X
                12          X       X        X
                15          X       X        X
                18          X       X        X
                21          X       X        X
                24          X       X        X
                27          X       X        X
                30          X       X        X
       12        3          X       X        X
                 6          X       X        X
                 9          X       X        X
                12          X       X        X
                15          X       X        X
                18          X       X        X
                21          X       X        X
                24          X       X        X
                27          X       X        X
                30          X       X        X
81      1        2          X       X        X
                 5          X       X        X
                 8          X       X        X
                11          X       X        X
                14          X       X        X
                17          X       X        X
                20          X       X        X
                23          X       X        X
                26          X       X        X
                29          X       X        X
        2        1          X       X        X
                 4          X       X        X
                 7          X       X        X
                10          X       X        X
                13          X       X        X
                16          X       X        X
                19          X       X        X.
                22          X       X        X
                25          X       X        X
81      2       28          X       X        X
        3        3          X       X        X
                 6          X       X        X
                 9          X       X        X
                12          X       X        X
                15          X       X        X
                18          X       X        X
                27          X       X        X
                30          X       X        X
        4        3          X       X        X
                 6          X       X        X
                 9          X       X        X
                12          X       X        X
                15          X       X        X
                18          X       X        X
                21          X       X        X
                24          X       X        X
                27          X       X        X
                30          X       X        X
        5        3          X       X        X
                 6          X       X        X
                 9          X       X        X
                12          X       X        X
                15          X       X        X
                18          X       X        X
                21          X       X        X
                24          X       X        X
                27          X       X        X
                30          X       X        X
```

```
              M R I DATA

                            STATION
                            AD42   AD56
  YEAR   MONTH   DAY
-----------------------------------------
   80      1      1          X       X
                  10         X       X
                  11         X       X
                  12         X       X
                  13         X       X
                  14         X       X
                  15         X       X
                  16         X       X
                  17         X       X
                  18         X       X
                  19         X       X
                  2          X       X
                  20         X       X
                  21         X       X
                  22         X       X
                  23         X       X
                  24         X       X
                  25         X       X
                  26         X       X
                  27         X       X
                  28         X       X
                  29         X       X
                  3          X       X
                  30         X       X
                  31         X       X
                  4          X       X
                  5          X       X
                  6          X       X
                  7          X       X
                  8          X       X
                  9          X       X
           2      1          X       X
                  10         X       X
                  11         X       X
                  12         X       X
                  13         X       X
                  14         X       X
                  15         X       X
                  16         X       X
                  17         X       X
                  18         X       X
                  19         X       X
                  2          X       X
                  20         X       X
                  21         X       X
                  22         X       X
                  23         X       X
                  24         X       X
                  25         X       X
                  26         X       X
                  27         X       X
                  28         X       X
                  29         X       X
                  3          X       X
                  4          X       X
                  5          X       X
                  6          X       X
                  7          X       X
                  8          X       X
                  9          X       X
           3      1          X       X
                  10         X       X
                  11         X       X
                  12         X       X
                  13         X       X
                  14         X       X
                  15         X       X
                  16         X       X
                  17         X       X
                  18         X       X
                  19         X       X
                  2          X       X
                  20         X       X
                  21         X       X
                  22         X       X
                  23         X       X
                  24         X       X
                  25         X       X
                  26         X       X
                  27         X       X
                  28         X       X
                  29         X       X
                  3          X       X
                  30         X       X
                  31         X       X
                  4          X       X
                  5          X       X
                  6          X       X
                  7          X       X
                  8          X       X
                  9          X       X
           4      1          X       X
                  10         X       X
                  11         X       X
                  12         X       X
                  13         X       X
                  14         X       X
                  15         X       X
                  16         X       X
                  17         X       X
                  18         X       X
                  19         X       X
                  2          X       X
                  20         X       X
```

Figure 4.1-6

```
                M R I DATA

                         STATION
YEAR  MONTH  DAY       AD42   AD56
-----------------------------------
 80     4    22         X      X
             23         X      X
             24         X      X
             25         X      X
             26         X      X
             27         X      X
             28         X      X
             29         X      X
             3          X      X
             30         X      X
             4          X      X
             5          X      X
             6          X      X
             7          X      X
             8          X      X
             9          X      X
        5    1          X      X
             10         X      X
             11         X      X
             12         X      X
             13         X      X
             14         X      X
             15         X      X
             16         X      X
             17         X      X
             18         X      X
             19         X      X
             2          X      X
             20         X      X
             21         X      X
             22         X      X
             23         X      X
             24         X      X
             25         X      X
             26         X      X
             27         X      X
             28         X      X
             29         X      X
             3          X      X
             30         X      X
             31         X      X
             4          X      X
             5          X      X
             6          X      X
             7          X      X
             8          X      X
             9          X      X
 80     6    1          X      X
             10         X      X
             11         X      X
             12         X      X
             13         X      X
             14         X      X
             15         X      X
             16         X      X
             17         X      X
             18         X      X
             19         X      X
             2          X      X
             20         X      X
             21         X      X
             22         X      X
             23         X      X
             24         X      X
             25         X      X
             26         X      X
             27         X      X
             28         X      X
             29         X      X
             3          X      X
             30         X      X
             4          X      X
             5          X      X
             6          X      X
             7          X      X
             8          X      X
             9          X      X
        7    1          X      X
             10         X      X
             11         X      X
             12         X      X
             13         X      X
             14         X      X
             15         X      X
             16         X      X
             17         X      X
             18         X      X
             19         X      X
             2          X      X
             20         X      X
             21         X      X
             22         X      X
             23         X      X
             24         X      X
 80     7    25         X      X
             26         X      X
             27         X      X
             28         X      X
             29         X      X
             3          X      X
             30         X      X
             31         X      X
             4          X      X
             5          X      X
             6          X      X
             7          X      X
             8          X      X
             9          X      X
        8    1          X      X
             10         X      X
             11         X      X
             12         X      X
             13         X      X
             14         X      X
             15         X      X
             16         X      X
             17         X      X
             18         X      X
             19         X      X
             2          X      X
             20         X      X
             21         X      X
             22         X      X
             23         X      X
             24         X      X
             25         X      X
             26         X      X
             27         X      X
             28         X      X
             29         X      X
             3          X      X
             30         X      X
             31         X      X
             4          X      X
             5          X      X
             6          X      X
             7          X      X
             8          X      X
             9          X      X
```

Figure 4.1-6 (cont.)

Figure 4.1-7

TRAFFIC

			LOCATION		
YEAR	MONTH	DAY	8T01	8T02	8T03
80	2	7	X	X	
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
		15	X	X	X
		16	X	X	X
		17	X	X	X
		18	X	X	X
		19	X	X	X
		20	X	X	X
		21	X	X	X
		22	X	X	X
	3	7	X	X	X
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
		15	X		
		16	X		
		17	X		
		18	X		
	4	10		X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
		15	X	X	X
		16	X	X	X
		17	X	X	X
		18	X		
	5	5	X		
		6	X	X	X
		7	X	X	X
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X		X
		13	X		X
	6	23			X
		24			X
		25			X
		26			X
		27			X
		28			X
		29			X
		30			X
	8	5		X	X
		6	X	X	X
		7	X	X	X
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
	9	5	X	X	X
		6	X	X	X
		7	X	X	X
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
		15	X	X	
		16	X	X	
	10	10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
		15	X	X	X
		16	X	X	X
		17	X	X	X
		18	X	X	X
		19	X	X	X
		20	X	X	X
		21	X	X	X
		22	X	X	X
		23	X	X	X
		24	X	X	X
		25	X	X	X
		26	X	X	X
		27	X	X	X
		28	X	X	X
		29	X	X	X
		30	X	X	X
		31		X	
	11	14	X	X	X
		15	X	X	X
		16	X	X	X
		17	X	X	X
		18	X	X	X
		19	X	X	X
		20	X	X	X
		21	X	X	X
	12	8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
		15	X	X	X
		16	X	X	X
		17			X
81	1	5	X	X	X
		6	X	X	X
		7	X	X	X
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
	2	6	X		
		7	X		
		8	X		
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14	X	X	X
		15	X		X
		16	X		X
		17	X		X
		18			X
	3	6	X	X	X
		7	X	X	X
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12	X	X	X
		13	X	X	X
		14			X
		15			X
		16			X
	4	10	X		X
		11	X		X
		12	X		X
		13	X		X
		14	X		X
		15	X		X
		16	X		X
		17	X		X
		18	X		X
		19	X		X
		20			X
		21			X
		22			X
	5	4	X	X	X
		5	X	X	X
		6	X	X	X
		7	X	X	X
		8	X	X	X
		9	X	X	X
		10	X	X	X
		11	X	X	X
		12		X	

Figure 4.1-8

MICROCLIMATE

YEAR	MONTH	DAY	STATION BC01	BC02	BC03	BC04	BC05	BC06	BC07	BC08	BC09	BC13
80	1	3	X	X	X	X	X	X	X	X	X	X
	2	4	X	X	X	X	X	X	X	X	X	X
		15	X	X	X	X	X	X	X	X	X	X
	3	3	X	X	X	X	X	X	X	X	X	X
		14	X	X	X	X	X	X	X	X	X	X
		31	X	X	X	X	X	X	X	X	X	X
	4	14	X	X	X	X	X	X	X	X	X	X
		30	X	X	X	X	X	X	X	X	X	X
	5	15	X	X	X	X	X	X	X	X	X	X
		30	X	X	X	X	X	X	X	X	X	X
	6	16	X	X	X	X	X	X	X	X	X	X
		30	X	X	X	X	X	X	X	X	X	X
	7	14	X	X	X	X	X	X	X	X	X	X
		31	X	X	X	X	X	X	X	X	X	X
	8	15	X	X	X	X	X	X	X	X	X	X
		29	X	X	X	X	X	X	X	X	X	X
	9	15	X	X	X	X	X	X	X	X	X	X
		29	X	X	X	X	X	X	X	X	X	X
	10	15	X	X	X	X	X	X	X	X	X	X
		31	X	X	X	X	X	X	X	X	X	X
	11	14	X	X	X	X	X	X	X	X	X	X
	12	1	X	X	X	X	X	X	X	X	X	X
		15	X	X	X	X	X	X	X	X	X	X
		31	X	X	X	X	X	X	X	X	X	X
81	1	15	X	X	X	X	X	X	X	X	X	X
		30	X	X	X	X	X	X	X	X	X	X
	2	12							X			
		13	X	X	X	X	X	X		X	X	X
		27	X	X	X	X	X	X	X	X	X	X
	3	16	X	X	X	X	X	X	X	X	X	X
		31	X	X	X	X	X	X	X	X	X	X
	4	15	X	X	X	X	X	X	X	X	X	X
		30	X	X	X	X	X	X	X	X	X	X
	5	15	X	X	X	X	X	X	X	X	X	X
		29	X	X	X	X	X	X	X	X	X	X

Figure 4.1-9

```
          DEER COUNT FOR 1980 AND 1981

    YEAR
    80                                  81
    MONTH
     1   2   3   4   5   9  10  11  12   1   2   3
LC
--------------------------------------------------
00       X       X       X   X       X   X   X
01   X   X   X   X
02   X   X   X   X           X
03           X   X
04       X   X   X
05       X   X   X           X   X
06   X   X   X   X
07   X   X   X   X
08   X   X   X   X
09   X   X   X   X           X               X   X
10   X   X   X   X           X   X
11   X   X   X   X           X   X               X
12   X   X   X   X   X
13   X   X   X   X           X   X
14   X   X   X   X   X       X   X
15       X   X   X   X       X   X           X
16   X   X   X   X           X   X   X           X
17   X   X   X   X   X       X   X               X
18   X   X   X   X   X       X   X           X   X
19   X   X   X   X   X       X   X       X   X   X
20   X   X   X   X   X       X   X               X
21   X   X   X   X   X       X   X               X
22   X   X   X   X   X           X           X   X
23   X   X   X   X   X       X   X               X
24   X   X   X   X   X       X   X               X
25   X   X   X   X   X           X               X
26   X   X       X               X           X   X
27   X   X   X   X   X                           X
28   X   X   X   X   X           X           X   X
29   X   X   X   X   X       X       X           X
30   X   X   X   X   X       X                   X
31   X   X   X   X   X       X   X   X   X       X
32       X   X   X   X
33   X       X   X   X       X
34       X   X   X                               X
35   X   X   X   X                           X
36       X   X   X
37   X   X   X   X                           X
38   X   X   X   X           X       X       X   X
39   X   X   X   X   X               X       X   X
40               X   X       X   X               X
41           X   X           X   X               X
```

```
          DEER KILL FOR 1980 AND 1981

    YEAR
    80                                  81
    MONTH
     1   2   3   4   5   9  10  11  12   1   2   3
LC
--------------------------------------------------
00   X   X               X   X       X   X   X   X
02           X
03           X
06       X   X               X
07           X   X
08           X   X
09       X   X   X           X
10       X   X   X
11           X   X
12           X   X
13       X   X   X               X
14       X   X       X           X
15               X   X           X   X
16       X       X                   X
17       X   X
18       X                   X
19       X   X       X
20               X           X
21       X       X           X
23       X   X
24       X
25               X
26               X               X
28                               X
30       X   X               X
31       X       X   X
32       X
33                           X
34               X
36                               X
37                           X   X
38                                       X   X
```

Figure 4.1-9 (cont.)

AVIFAUNA

			TRANSECT				
YEAR	GROUPNO	SPEICES	1	2	3	4	5
80	2	BRBLAC			X		
	3	MOBLUE	X	X	X	X	X
	4	MOCHIC		X		X	
	5	MODOVE	X	X			
	6	COFLIC		X	X		
	7	DUFLYC				X	
		EMFLYC				X	
		WEFLYC				X	
	11	BTHUMM			X	X	X
	12	PINJAY		X	X		
	14	KESTRE			X		
	15	WEKING			X		X
	16	MAGPIE					X
	17	WEMEAD			X		X
	18	CLNUTC		X		X	X
	19	RBNUTH				X	
		WBNUTH		X			
	21	RAVENS	X			X	
	22	ROBINS				X	X
	26	BRSPAR	X		X	X	X
		CHSPAR	X	X	X	X	X
		LASPAR					X
		VESPAR	X		X		X
		WCSPAR	X				
	27	RWSWAL		X	X	X	
		SWALLO	X				
	29	HETHRU		X	X	X	
	30	GTTOWH	X		X	X	X
	31	SOVIRE	X	X		X	X
	32	BTWARB	X	X		X	
		VIWARB		X			
	33	HOWREN	X	X	X	X	X
	34	HAWOOD				X	

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```
PAGE      1      Table 4.1-1

          DESCRIPTION FOR RAMIS FILE WTRQLT
                     05/29/81

                                                   LEVEL    SEGMENT
LIST      FIELDNAME        SYNONYM         LEVEL   TYPE     FACTOR    TYPE   LENGTH
----      ---------        -------         -----   -----    -------   ----   ------

     1    LOC              LOCATION        1       S          10      A      4
     2    YR               YEAR            2       S           1      I      2
     3    MO               MONTH           3       S           1      I      2
     4    DY               DAY             4       S           1      I      2
     5    TALK             TOTALK          4       S           1      F      7.1
     6    AL               ALUMINUM        4       S           1      F      6.3
     7    ARS              ARSENIC         4       S           1      F      5.3
     8    FCOLIF           FCOLIF          4       S           1      F      6.2
     9    BA               BARIUM          4       S           1      F      5.2
    10    HCO3             BICARBONTE      4       S           1      F      7.1
    11    BOD              BOD             4       S           1      F      6.1
    12    B                BORON           4       S           1      F      6.2
    13    BR               BROMIDE         4       S           1      F      6.3
    14    TCOLIF           TCOLIF          4       S           1      F      7.1
    15    CD               CADIUM          4       S           1      F      6.3
    16    CA               CALCIUM         4       S           1      F      6.1
    17    CO3              CARBONATE       4       S           1      F      6.1
    18    CL               CHLORIDE        4       S           1      F      7.1
    19    CR               CHROMIUM        4       S           1      F      6.3
    20    COD              COD             4       S           1      F      7.1
    21    CU               COPPER          4       S           1      F      6.3
    22    DO               DISSOXY         4       S           1      F      4.1
    23    DOC              DOC             4       S           1      F      5.1
    24    LAS              LASSURF         4       S           1      F      6.2
    25    F                FLORIDE         4       S           1      F      6.2
    26    HARD             HARDNESS        4       S           1      F      7.1
    27    FE               IRON            4       S           1      F      5.2
    28    KJN              KJELDNIT        4       S           1      F      5.2
    29    PB               LEAD            4       S           1      F      6.3
    30    LI               LITHIUM         4       S           1      F      5.2
    31    MG               MAGNESIUM       4       S           1      F      5.1
    32    MN               MANGANESE       4       S           1      F      6.3
    33    HG               MERCURY         4       S           1      D      8.5
    34    MOLY             MOLYBDENUM      4       S           1      F      6.3
    35    NI               NICKEL          4       S           1      F      6.3
    36    NO3              NITRATE         4       S           1      F      6.2
    37    OLGR             OILGREASE       4       S           1      F      5.1
    38    S2O3             S2O3            4       S           1      F      5.1
    39    PH               PH              4       S           1      F      3.1
    40    K                POTASSIUM       4       S           1      F      5.1
    41    RA               ALPHA           4       S           1      F      5.1
    42    BTR              BETA            4       S           1      F      5.1
    43    RR               RADIUM226       4       S           1      F      5.1
    44    SE               SELENIUM        4       S           1      F      6.3
    45    AG               SILVER          4       S           1      F      6.3
    46    NA               SODIUM          4       S           1      F      7.1
    47    TDS              TDS             4       S           1      F      7.1
    48    SOLS             SOLSOLIDS       4       S           1      F      7.1
```

Table 4.1-1 (Cont.)

DESCRIPTION FOR RAMIS FILE WTRQLT
05/29/81

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
49	SPC	SPECCOND	4	S	1	F	7.1
50	SR	STRONTIUM	4	S	1	F	4.1
51	SO4	SULFATE	4	S	1	F	6.1
52	TEMP	TEMP	4	S	1	F	4.1
53	ZN	ZINC	4	S	1	F	6.3
54	TOC	TOC	4	S	1	F	5.1
55	PHEN	PHENOLS	4	S	1	F	6.4
56	CYAN	CYANIDE	4	S	1	F	6.3
57	NH3	AMMONIA	4	S	1	D	8.3
58	PST	PHOSPHATE	4	S	1	F	6.2
59	SIO2	SILICA	4	S	1	F	6.1
60	U	URANIUM	4	S	1	F	5.3
61	SUSS	SUSSOLID	4	S	1	F	7.1
62	TH	THORIUM	4	S	1	F	6.3
63	CS	CESIUM	4	S	1	F	6.3
64	I	IODINE	4	S	1	F	6.3
65	SB	ANTIMONY	4	S	1	F	6.3
66	ZR	ZIRCONIUM	4	S	1	F	6.3
67	Y	YTTRIUM	4	S	1	F	5.3
68	RB	RUBIDIUM	4	S	1	F	6.3
69	GE	GERMAIUM	4	S	1	F	6.3
70	GA	GALLIUM	4	S	1	F	6.3
71	TI	TITANIUM	4	S	1	F	6.3
72	SC	SCANDIUM	4	S	1	F	6.3
73	W	TUNGSTEN	4	S	1	F	6.3
74	CO	COBALT	4	S	1	F	6.3
75	V	VANADIUM	4	S	1	F	6.3
76	BE	BERRYLLIUM	4	S	1	F	5.3
77	OH	HYDROXIDES	4	S	1	F	5.1
78	CH	CONDHYDCARD	4	S	1	F	7.3
79	PA	PALK	4	S	1	F	7.1
80	MA	MOALK	4	S	1	F	7.1
81	DM1	DM1	4	S	1	F	7.1
82	DM2	DM2	4	S	1	F	7.1
83	DM3	DM3	4	S	1	F	7.1
84	DM4	DM4	4	S	1	F	7.1
85	DM5	DM5	4	S	1	F	7.1

PAGE 1 Table 4.1-2

DESCRIPTION FOR RAMIS FILE SHAFTQW
05/29/81

LIST	FIELDNAME	SYNONYM	LEVEL	LEVEL TYPE	SEGMENT FACTOR	TYPE	LENGTH
1	LOCATION	LOC	1	S	1	A	4
2	YEAR	YR	2	S	1	I	2
3	MONTH	MO	2	S	1	I	2
4	DAY	DY	3	S	1	I	2
5	GROUT	GRT	3	S	1	I	2
6	PROBEHOLE	PBH	3	S	1	A	2
7	DEPTH	DP	3	S	1	I	5
8	ELEVATION	ELV	3	S	1	I	5
9	GPM	GPM	3	S	1	I	4
10	ALUMINUM	AL	3	S	1	F	6.3
11	ARSENIC	ARS	3	S	1	F	6.3
12	BARIUM	BA	3	S	1	F	6.2
13	BORON	B	3	S	1	F	6.2
14	CADMIUM	CD	3	S	1	F	6.3
15	CALCIUM	CA	3	S	1	F	6.1
16	CHROMIUM	CR	3	S	1	F	6.3
17	COBALT	CO	3	S	1	F	6.3
18	COPPER	CU	3	S	1	F	6.3
19	IRON	FE	3	S	1	F	6.2
20	LEAD	PB	3	S	1	F	6.3
21	LITHIUM	LI	3	S	1	F	6.2
22	MAGNESIUM	MG	3	S	1	F	6.1
23	MANGANESE	MN	3	S	1	F	6.3
24	MERCURY	HG	3	S	1	F	8.5
25	MOLYBDENUM	MOLY	3	S	1	F	6.3
26	NICKEL	NI	3	S	1	F	6.3
27	POTASSIUM	K	3	S	1	F	6.1
28	SELENIUM	SE	3	S	1	F	6.3
29	SILVER	AG	3	S	1	F	6.3
30	SODIUM	NA	3	S	1	F	7.1
31	STRONTIUM	SR	3	S	1	F	6.1
32	VANADIUM	V	3	S	1	F	6.3
33	ZINC	ZN	3	S	1	F	6.3
34	ALKALINITY	ALK	3	S	1	F	7.1
35	BICARBONATE	HCO3	3	S	1	F	7.1
36	CARBONATE	CO3	3	S	1	F	6.1
37	BROMIDE	BR	3	S	1	F	6.3
38	CHLORIDE	CL	3	S	1	F	7.1
39	FLUORIDE	F	3	S	1	F	6.2
40	HARDNESS	HARD	3	S	1	F	7.1
41	AMMONIA	NH3	3	S	1	F	6.3
42	KJELDNIT	KJN	3	S	1	F	6.1
43	NITRATE	NO3	3	S	1	F	6.2
44	BIOOXYDEMD	BOD	3	S	1	F	6.1
45	CHEMOXYDEM	COD	3	S	1	F	7.1
46	OILGREASE	OLGR	3	S	1	F	6.1
47	PHENOLS	PHEN	3	S	1	F	6.4
48	SILICA	SLC	3	S	1	F	6.1

```
PAGE      2    Table 4.1-2 (Cont.)
      DESCRIPTION FOR RAMIS FILE SHAFTQW
              05/29/81

                                              LEVEL   SEGMENT
LIST   FIELDNAME      SYNONYM         LEVEL   TYPE    FACTOR    TYPE   LENGTH
----   ----------     -------         -----   -----   -------   ----   ------
  49   SOLIDSDISS     TDS             3       S             1   F      7.1
  50   SUSSOLID       SUSS            3       S             1   F      7.1
  51   SULFATE        SO4             3       S             1   F      6.1
  52   TURBIDITY      TURB            3       S             1   F      7.1
  53   DISSORGCARB    DOC             3       S             1   F      6.1
  54   TOTALCOLIF     TCOLIF          3       S             1   F      6.1
  55   FECALCOLIF     FCOLIF          3       S             1   F      6.1
  56   PH             PH              3       S             1   F      5.2
  57   SPECCOND       SPC             3       S             1   F      6.1
  58   DISSOXY        DO              3       S             1   F      5.1
  59   TEMP           TEMP            3       S             1   F      4.1
  60   DUM1           DUM1            3       S             1   F      6.1
  61   DUM2           DUM2            3       S             1   F      6.1
  62   DUM3           DUM3            3       S             1   F      6.1
  63   DUM4           DUM4            3       S             1   F      6.1

 RP0808: NUMBER OF RECORDS IN TABLE=       63  LINES=    63
>
```

```
/
ramindex wtrlev
 PAGE     1
                Table 4.1-3
       DESCRIPTION FOR RAMIS FILE WTRLEV
              05/29/81

                                                     LEVEL  SEGMENT
 LIST   FIELDNAME     SYNONYM          LEVEL  TYPE   FACTOR   TYPE  LENGTH
 ----   ---------     -------          -----  -----  -------  ----  ------
    1   LOC           LOC              1      S         1     A     4
    2   YR            YR               2      S         0     I     2
    3   MO            MO               2      S         0     I     2
    4   DY            DY               2      S         0     I     2
    5   STATUS        ST               2      S         0     A     6
    6   DEPTH         DP               2      S         0     F     7.2
    7   TEMP          TEMP             2      S         0     F     5.1
    8   PH            PH               2      S         0     F     4.1
    9   DO            DO               2      S         0     F     5.1
   10   SPC           SPC              2      S         0     F     6.1

  RP0808: NUMBER OF RECORDS IN TABLE=      10  LINES=     10
>
_
```

Table 4.1-4

```
ramindex steven
 PAGE     1

       DESCRIPTION FOR RAMIS FILE STEVEN
               05/29/81

                                          LEVEL  SEGMENT
 LIST   FIELDNAME     SYNONYM      LEVEL  TYPE   FACTOR   TYPE  LENGTH
 ----   ---------     -------      -----  -----  -------  ----  ------
    1   LOCATION      LOC          1      S           1   A     4
    2   YEAR          YR           1      S           1   I     2
    3   MONTH         MO           1      S           1   I     2
    4   DAY           DY           2      S           1   I     2
    5   DEPTH         DP           2      S           1   F     7.2

  RP0808: NUMBER OF RECORDS IN TABLE=       5  LINES=     5
>
_
```

Table 4.1-5

```
PAGE      1

      DESCRIPTION FOR RAMIS FILE NPDES
                 05/29/81

LIST    FIELDNAME        SYNONYM        LEVEL   TYPE    FACTOR    TYPE  LENGTH
----    ---------        -------        -----   -----   ------    ----  ------

   1    LOCATION         LOC            1       S           1     A     4
   2    YEAR             YR             1       S           1     I     2
   3    MONTH            MO             1       S           1     I     2
   4    DAY              DY             1       S           1     I     2
   5    FLOW             FLW            2       S           0     F     6.1
   6    TOTSUSSOLID      TSS            2       S           0     F     6.1
   7    TOTDISSOLID      TDS            2       S           0     F     6.1
   8    FLORIDE          F              2       S           0     F     6.2
   9    BORON            B              2       S           0     F     6.2
  10    AMMONIA          NH3            2       S           0     F     6.2
  11    PHENOL           PHEN           2       S           0     F     6.3
  12    ALUMINUM         AL             2       S           0     F     6.1
  13    IRON             FE             2       S           0     F     6.2
  14    OLGR             OLGR           2       S           0     I     5
  15    PH               PH             2       S           0     F     5.2
  16    CADMIUM          CD             2       S           0     F     6.2
  17    COPPER           CU             2       S           0     F     6.2
  18    MERCURY          HG             2       S           0     D     8.5
  19    SILVER           AG             2       S           0     F     6.2
  20    ZINC             ZN             2       S           0     F     6.2
  21    SPC              SPC            2       S           0     F     7.1
  22    DO               DO             2       S           0     F     5.2
  23    TEMP             TEMP           2       S           0     F     5.1
  24    FTOTSUSSOLID     FTSS           2       S           0     F     5.1
  25    COD              COD            2       S           0     F     7.3
  26    DM2              DM2            2       S           0     F     7.1
  27    DM3              DM3            2       S           0     F     7.1
  28    DM4              DM4            2       S           0     F     7.1

 RP0808: NUMBER OF RECORDS IN TABLE=      28  LINES=    28
>
```

```
PAGE      1          Table 4.1-6

      DESCRIPTION FOR RAMIS FILE NPDESSA
              05/29/81

                                                 LEVEL   SEGMENT
LIST   FIELDNAME      SYNONYM         LEVEL   TYPE    FACTOR     TYPE   LENGTH
----   ---------      -------         -----   -----   -------    ----   ------
   1   LOCATION       LOC             1       S          1       A      4
   2   YEAR           YR              1       S          1       I      2
   3   MONTH          MO              1       S          1       I      2
   4   DAY            DY              1       S          1       I      2
   5   TOTDISSOLID    TDS             2       S          1       F      6.1
   6   FLORIDE        F               2       S          1       F      6.2
   7   BORON          B               2       S          1       F      6.2
   8   AMMONASN       NH3             2       S          1       F      6.3
   9   PHENOL         PHEN            2       S          1       F      6.3
  10   OILGREASE      OG              2       S          1       F      6.2
  11   TMERCURY       THG             2       S          1       D      8.5
  12   TALUMINUM      TAL             2       S          1       F      6.2
  13   TARSENIC       TARS            2       S          1       F      6.2
  14   TBARIUM        TBA             2       S          1       F      6.2
  15   TCADMIUM       TCD             2       S          1       F      6.2
  16   CALCIUM        CA              2       S          1       F      6.2
  17   TCHROMIUM      TCR             2       S          1       F      6.2
  18   TCOPPER        TCU             2       S          1       F      6.2
  19   TIRON          TFE             2       S          1       F      6.2
  20   TLEAD          TPB             2       S          1       F      6.2
  21   TLITHIUM       TLI             2       S          1       F      6.2
  22   MAGNESIUM      MG              2       S          1       F      6.2
  23   TMANGANESE     TMN             2       S          1       F      6.2
  24   TMOLYBDENUM    TMO             2       S          1       F      6.2
  25   TNICKEL        TNI             2       S          1       F      6.2
  26   TPOTASSIUM     TKA             2       S          1       F      6.2
  27   SELENIUM       SE              2       S          1       D      8.4
  28   TSILVER        TAG             2       S          1       F      6.2
  29   TSODIUM        TNA             2       S          1       F      6.2
  30   TSTRONTIUM     TSR             2       S          1       F      6.2
  31   TZINC          TZN             2       S          1       F      6.2
  32   TTITANIUM      TTI             2       S          1       F      6.2
  33   TVANADIUM      TV              2       S          1       F      6.2
  34   COD            COD             2       S          1       F      6.2
  35   TOTALK         TALK            2       S          1       F      6.2
  36   KJELDAHL       KJL             2       S          1       F      6.2
  37   BICARBONATE    HCO3            2       S          1       F      6.1
  38   BROMIDE        BR              2       S          1       F      6.1
  39   CARBONATE      CO3             2       S          1       F      6.1
  40   CHLORIDE       CL              2       S          1       F      6.1
  41   NITRATE        NO3             2       S          1       F      6.1
  42   SULFATE        SO4             2       S          1       F      6.1
  43   SULFIDE        SO3             2       S          1       F      6.1
  44   SILICA         SIO2            2       S          1       F      6.1
  45   ALPHA          ALP             2       S          1       F      6.1
  46   BETA           BET             2       S          1       F      6.1
  47   RADIUM226      R226            2       S          1       F      6.3
  48   URANIUM        U               2       S          1       D      8.4
```

Table 4.1-6 (Cont.)

```
_PAGE     2

      DESCRIPTION FOR RAMIS FILE NPDESSA
              05/29/81

                                             LEVEL  SEGMENT
LIST  FIELDNAME      SYNONYM         LEVEL   TYPE   FACTOR    TYPE  LENGTH
----  -----------    -------         -----   -----  -------   ----  ------

  49  TZIRCONIUM     TZR             2       S         1      F     6.3
  50  TBERYLLIUM     TBE             2       S         1      F     6.3
  51  TBISMUTH       TBI             2       S         1      F     6.3
  52  TGERMANIUM     TGR             2       S         1      F     6.3
  53  TGALLIUM       TGA             2       S         1      F     6.3
  54  CYANIDE        CYAN            2       S         1      F     6.3
  55  CONDUCTIVITY   COND            2       S         1      F     6.1
  56  PH             PH              2       S         1      F     5.1
  57  DOC            DOC             2       S         1      F     6.1
  58  HPHOBICTOT     HPBT            2       S         1      F     6.1
  59  HPHOBICBAS     HPBB            2       S         1      F     6.1
  60  HPHOBICACD     HPBA            2       S         1      F     6.1
  61  HPHOBICNTL     HPBN            2       S         1      F     6.1
  62  HPHILICTOT     HPLT            2       S         1      F     6.1
  63  HPHILICBAS     HPLB            2       S         1      F     6.1
  64  HPHILICACD     HPLA            2       S         1      F     6.1
  65  HPHILICNTL     HPLN            2       S         1      F     6.1
  66  NTRANTRI       NN              2       S         1      F     6.3
  67  TEMP           TEMP            2       S         1      F     6.2
  68  SUSSOLD        SUSS            2       S         1      F     6.2
  69  TCS            TCESIUM137      2       S         1      F     6.2
  70  SR90           SR90            2       S         1      F     6.2
  71  DUMMY5         DM5             2       S         1      F     6.2
  72  DUMMY6         DM6             2       S         1      F     6.2
  73  DUMMY7         DM7             2       S         1      F     6.2
```

Table 4.1-7

```
PAGE      1

      DESCRIPTION FOR RAMIS FILE INJECT
              05/29/81

                                                      LEVEL   SEGMENT
LIST    FIELDNAME       SYNONYM             LEVEL    TYPE    FACTOR     TYPE    LENGTH
----    ----------      --------            -----    -----   -------    ----    -------
   1    CODE            CODE                1        S          1       A       4
   2    YR              YR                  2        S          0       I       2
   3    MO              MO                  2        S          0       I       2
   4    DY              DY                  2        S          0       I       2
   5    HR              HR                  2        S          0       I       2
   6    MN              MN                  2        S          0       I       2
   7    MARK            MARK                2        S          0       I       5
   8    DEPTH           DEPTH               2        S          0       F       6.2

 RP0808: NUMBER OF RECORDS IN TABLE=        8  LINES=       8
>
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```

Table 4.1-8

```
PAGE     1

       DESCRIPTION FOR RAMIS FILE WTRUSAGE
              05/29/81

                                               LEVEL  SEGMENT
LIST   FIELDNAME      SYNONYM         LEVEL   TYPE   FACTOR    TYPE  LENGTH
----   ---------      -------         -----   -----  -------   ----  ------
   1   SHAFT          SH              1       S         1      A     3
   2   YEAR           YR              2       S         1      I     2
   3   MONTH          MO              2       S         1      I     2
   4   DAY            DY              2       S         1      I     2
   5   FLOW           FL              2       S         1      F     6.1

 RP0808: NUMBER OF RECORDS IN TABLE=       5  LINES=     5
>
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```

Table 4.1-9

```
      DESCRIPTION FOR RAMIS FILE LTLAIR
                 05/29/81

                                           L E V E L  SEGMENT
LIST   FIELDNAME     SYNONYM       NAME TYPE  FACTOR   FORMAT
----   ---------     -------       ---------  -------  ------
   1   TRAILER       TRL           1     S         2   A   3
   2   YEAR          YR            2     S         0   A   2
   3   MONTH         MO            2     S         0   A   2
   4   DAY           DY            3     S        31   A   2
   5   HOUR          HR            3     S        31   A   2
   6   NITROGOX      NOX           3     S        31   F   6.1
   7   NITRICOX      NO            3     S        31   F   6.1
   8   SULFDIOX      SO2           3     S        31   F   6.1
   9   WINDSP30      WS            3     S        31   F   6.1
  10   WINDDIR30     WD            3     S        31   F   6.1
  11   RELATHUMID    RH            3     S        31   F   6.1
  12   TEMINTRL      TIN           3     S        31   F   6.1
  13   TEMOUT30      TOUT          3     S        31   F   6.1
  14   SOLRAD        SR            3     S        31   F   6.1
  15   HYDROGSULF    H2S           3     S        31   F   6.1
  16   LINEVOLT      VOLT          3     S        31   F   6.1
  17   TOTHYDCARB    THC           3     S        31   F   6.1
  18   METHANE       CH4           3     S        31   F   6.1
  19   CARBMONOX     CO            3     S        31   F   6.1
  20   OZONE         O3            3     S        31   F   6.1
  21   BARPRESS      PRES          3     S        31   F   6.1
  22   WINDSTDDEV    WSD           3     S        31   F   6.1
  23   RAINFALL      RAIN          3     S        31   F   6.1
  24   NITROGDIOX    NO2           3     S        31   F   6.1
  25   NONMETHHC     NMHC          3     S        31   F   6.1

_ RP0808: NUMBER OF RECORDS IN TABLE=      25  LINES=     25
```

Table 4.1-10

```
PAGE     1

      DESCRIPTION FOR RAMIS FILE PARTIC
              05/29/81

                                             LEVEL  SEGMENT
LIST  FIELDNAME     SYNONYM          LEVEL   TYPE   FACTOR    TYPE  LENGTH
----  ---------     -------          -----   -----  -------   ----  ------
   1  TRAILER       TRL              1       S          4     A     4
   2  YEAR          YR               2       S          0     I     2
   3  MONTH         MO               2       S          0     I     2
   4  DAY           DY               3       S         31     I     2
   5  PARTICULATE   PART             3       S         31     F     6.1

 RP0808: NUMBER OF RECORDS IN TABLE=       5  LINES=     5
>
-
```

Table 4.1-11

```
      DESCRIPTION FOR RAMIS FILE VRANGE
             05/29/81

                                          LEVEL  SEGMENT
LIST  FIELDNAME     SYNONYM        LEVEL  TYPE   FACTOR    TYPE  LENGTH
----  ---------     -------        -----  -----  -------   ----  ------
   1  TRAILER       TRL            1      S         1      A     4
   2  YEAR          YR             2      S         0      I     2
   3  MONTH         MO             2      S         0      I     2
   4  DAY           DY             3      S         0      I     2
   5  RANGE         RNG            3      S         0      F     6.1

 RP0808: NUMBER OF RECORDS IN TABLE=        5  LINES=     5
>
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Table 4.1-12

```
ramindex mridata
 PAGE      1

       DESCRIPTION FOR RAMIS FILE MRIDATA
                  05/29/81

                                                        LEVEL   SEGMENT
 LIST     FIELDNAME        SYNONYM            LEVEL    TYPE    FACTOR      TYPE   LENGTH
 -----    -----------      ---------          ------   ------  ---------   -----  -------
     1    STATION          ST                 1        S           4       A      4
     2    YEAR             YR                 2        S           0       A      2
     3    MONTH            MO                 2        S           0       A      2
     4    DAY              DY                 3        S          31       A      2
     5    HOUR             HR                 3        S          31       A      2
     6    WINDSPEED        WS                 3        S          31       F      6.1
     7    WINDDIR          WD                 3        S          31       F      6.1
     8    TEMPERATURE      TEMP               3        S          31       F      6.1

  RP0808: NUMBER OF RECORDS IN TABLE=        8  LINES=     8
>
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```

```
PAGE      1         Table 4.1-13

      DESCRIPTION FOR RAMIS FILE METAIR
              05/29/81

                                         L E V E L   SEGMENT
LIST   FIELDNAME      SYNONYM            NAME TYPE   FACTOR    FORMAT
----   ----------     -------            ---------   -------   ------
   1   TOWER          TOW                1    S          1     A   3
   2   YEAR           YR                 2    S          0     A   2
   3   MONTH          MO                 2    S          0     A   2
   4   DAY            DY                 3    S         31     A   2
   5   HOUR           HR                 3    S         31     A   2
   6   WINDSP8        WS1                3    S         31     F   6.1
   7   WINDDIR8       WD1                3    S         31     F   6.1
   8   RELHUMD8       RH1                3    S         31     F   6.1
   9   TEMP8          TMP1               3    S         31     F   6.1
  10   WINDSP30       WS2                3    S         31     F   6.1
  11   WINDDIR30      WD2                3    S         31     F   6.1
  12   RELHUM30       RH2                3    S         31     F   6.1
  13   TEMP30         TMP2               3    S         31     F   6.1
  14   WINDSP100      WS3                3    S         31     F   6.1
  15   WINDDIR100     WD3                3    S         31     F   6.1
  16   RELHUM100      RH3                3    S         31     F   6.1
  17   TEMP100        TMP3               3    S         31     F   6.1
  18   WINDSP200      WS4                3    S         31     F   6.1
  19   WINDDIR200     WD4                3    S         31     F   6.1
  20   RELHUM200      RH4                3    S         31     F   6.1
  21   TEMP200        TMP4               3    S         31     F   6.1
  22   DELTTEMP1      DT1                3    S         31     F   6.1
  23   DELTTEMP2      DT2                3    S         31     F   6.1
  24   BIVWS30        BWS1               3    S         31     F   6.1
  25   HORWD30        HWD1               3    S         31     F   6.1
  26   VERTWD30       VWD1               3    S         31     F   6.1
  27   BIVWS100       BWS2               3    S         31     F   6.1
  28   HORWD100       HWD2               3    S         31     F   6.1
  29   VERTWD100      VWD2               3    S         31     F   6.1
  30   BIVWS200       BWS3               3    S         31     F   6.1
  31   HORWD200       HWD3               3    S         31     F   6.1
  32   VERTWD200      VWD3               3    S         31     F   6.1
  33   WINDSD8        WDV1               3    S         31     F   6.1
  34   WINDSD30       WDV2               3    S         31     F   6.1
  35   WINDSD100      WDV3               3    S         31     F   6.1
  36   WINDSD200      WDV4               3    S         31     F   6.1
  37   HWINDSD30      HSD1               3    S         31     F   6.1
  38   VWINDSD30      VSD1               3    S         31     F   6.1
  39   HWINDSD100     HSD2               3    S         31     F   6.1
  40   VWINDSD100     VSD2               3    S         31     F   6.1
  41   HWINDSD200     HSD3               3    S         31     F   6.1
  42   VWINDSD200     VSD3               3    S         31     F   6.1

  RP0808: NUMBER OF RECORDS IN TABLE=      42  LINES=     42
>
```

Table 4.1-14

```
      DESCRIPTION FOR RAMIS FILE EVAPOR
              05/29/81

                                                 LEVEL  SEGMENT
LIST   FIELDNAME      SYNONYM           LEVEL    TYPE   FACTOR    TYPE  LENGTH
----   ---------      -------           -----    -----  -------   ----  ------
   1   TRAILER        TRL               1        S         1      A     4
   2   YEAR           YR                2        S         1      I     2
   3   MONTH          MO                2        S         1      I     2
   4   DAY            DY                3        S         1      I     2
   5   EVAPORATION    EVP               3        S         1      F     7.3
   6   TOTWIND        TW                3        S         1      F     6.1

 RP0808: NUMBER OF RECORDS IN TABLE=       6  LINES=     6
>
```

Table 4.1-15

```
PAGE     1

      DESCRIPTION FOR RAMIS FILE ACRADAR
             05/29/81

                                           L E V E L  SEGMENT
LIST   FIELDNAME       SYNONYM             NAME TYPE  FACTOR    FORMAT
----   ---------       -------             ---------  -------   ------
   1   TRAILER         TRL                 1    S        1      A   4
   2   YEAR            YR                  2    S        0      A   2
   3   MONTH           MO                  2    S        0      A   2
   4   DAY             DY                  3    S       31      A   2
   5   HOUR            HR                  3    S       31      A   2
   6   MIXHGT          MIX                 3    S       31      F   6.1
   7   STBCLS1         STB1                3    S       31      F   6.1
   8   INVERHGT        INV                 3    S       31      F   6.1
   9   STBCLS2         STB2                3    S       31      F   6.1

 RP0808: NUMBER OF RECORDS IN TABLE=      9  LINES=     9
>
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Table 4.1-16

```
PAGE     1

       DESCRIPTION FOR RAMIS FILE MICRO
               05/29/81

                                                LEVEL   SEGMENT
LIST   FIELDNAME     SYNONYM          LEVEL    TYPE    FACTOR    TYPE   LENGTH
----   ---------     -------          -----    -----   -------   ----   ------
   1   STATION       ST               1        S          2      A      4
   2   YEAR          YR               2        S          0      I      2
   3   MONTH         MO               3        S          0      I      2
   4   DAY           DY               4        S          0      I      2
   5   STATID        SID              5        S          0      A      2
   6   TEMPMX1M      TPMX             5        S          0      F      5.1
   7   TEMPMN1M      TPMN             5        S          0      F      5.1
   8   SRFTPMAX      STPMX            5        S          0      F      5.1
   9   SRFTPMIN      STPMN            5        S          0      F      5.1
  10   PRECIP        PR               5        S          0      F      6.2
  11   SNODPTH       SD               5        S          0      F      5.1
  12   SNOMOIST      SM               5        S          0      F      5.1

 RP0808: NUMBER OF RECORDS IN TABLE=       12  LINES=     12
>
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Table 4.1-17

```
PAGE     1

      DESCRIPTION FOR RAMIS FILE DRKILL
             05/29/81

                                        L E V E L  SEGMENT
LIST   FIELDNAME    SYNONYM             NAME TYPE  FACTOR    FORMAT
----   ---------    -------             ---------  -------   ------

   1   MILE         ML                  1     S       42     A   4
   2   YEAR         YR                  2     S       10     I   2
   3   MONTH        MO                  3     S       12     I   2
   4   DAY          DY                  4     S       31     I   2
   5   STRESS       STR                 5     S        1     A   5
   6   COUNT        CNT                 5     S        1     I   4
   7   SEX          SX                  6     S        1     A   2
   8   AGE          AG                  6     S        1     A   10
   9   WEATHER      WTHR                7     U        1     A   20

 RP0808: NUMBER OF RECORDS IN TABLE=      9  LINES=     9
>
-
```

Table 4.1-18

```
PAGE     1

      DESCRIPTION FOR RAMIS FILE DEERCNT
              05/29/81

                                          L E V E L  SEGMENT
LIST   FIELDNAME      SYNONYM             NAME TYPE  FACTOR    FORMAT
----   ---------      -------             ---------  -------   ------

   1   MILE           ML                  1    S        1      A   4
   2   YEAR           YR                  2    S        1      I   2
   3   MONTH          MO                  2    S        1      I   2
   4   DAY            DY                  2    S        1      I   2
   5   WEATHER        WTHR                2    S        1      A   20
   6   COUNT          CNT                 2    S        1      I   4

 RP0808: NUMBER OF RECORDS IN TABLE=        6  LINES=     6
>
-
```

```
PAGE          Table 4.1-19

       DESCRIPTION FOR RAMIS FILE BIRDS
              05/29/81

                                        L E V E L  SEGMENT
LIST   FIELDNAME     SYNONYM            NAME TYPE  FACTOR   FORMAT
----   ---------     -------            ---------  -------  ------
   1   TRANSECT      TRAN               1    S         1    I   2
   2   YEAR          YR                 2    S         1    I   2
   3   GROUPNO       GN                 2    S         1    I   2
   4   SPEICES       SP                 2    S         1    A   6
   5   COUNT         CNT                2    S         1    I   4

 RP0808: NUMBER OF RECORDS IN TABLE=        5  LINES=     5
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Table 4.1-20

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PAGE

          DESCRIPTION FOR RAMIS FILE TRAF
                    05/29/81

                                          L E V E L  SEGMENT
LIST      FIELDNAME         SYNONYM       NAME TYPE  FACTOR    FORMAT
----      ---------         -------       ---------  -------   ------
    1     LOCATION          LOC           1    S        1      A   4
    2     YEAR              YR            2    S        1      I   2
    3     MONTH             MO            2    S        1      I   2
    4     DAY               DY            2    S        1      I   2
    5     HOUR              HR            2    S        1      I   2
    6     INTRAF            IT            2    S        1      I   5
    7     OUTRAF            OT            2    S        1      I   5

 RP0808: NUMBER OF RECORDS IN TABLE=         7  LINES=     7
>
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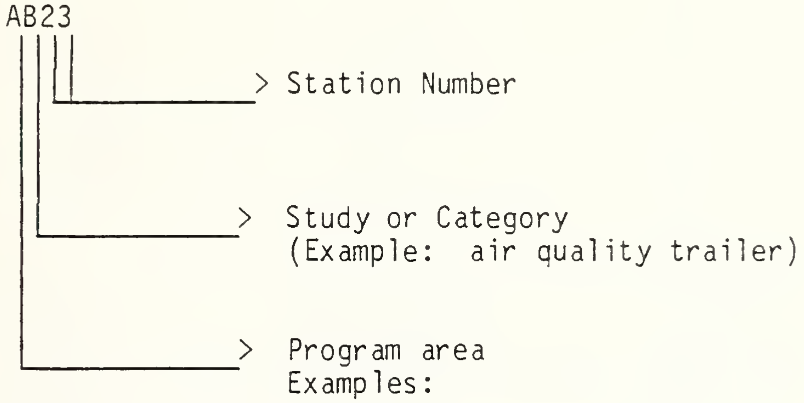
4.2 Station Computer Code

Four-digit computer codes have been designated for monitoring stations to be used with a computerized data base management system (RAMIS). A major portion of the raw data collected at the C-b Tract is retained in RAMIS. Once entered the data can be retrieved for reporting and/or statistical analysis. The codes reduce storage space and provide a systematic identification to access station data sets. The code consists of two letters followed by two numbers.



A = air
N = noise
W = water
B = biology
P = photography

The codes are presented in Table 4.2-1 for the environmental program along with the current station designations. An attempt has been made throughout this report to refer to all stations in terms of their four-digit codes.

Table 4.2-1

COMPUTER CODE AND STATION I.D. CROSS-REFERENCE

I Air Quality & Meteorology

	Station Designation	Computer Code
Met. Tower:	@ Sta. 023	AA23
Trailers:	020	AB20
	021	AB21
	022	AB22
	023	AB23
	024	AB24
Acoustic Radar	Sta. 020	AC20
	021	AC21
	023	AC23
MRI and Particulates	Sta. 031	AD31
	032	AD32
	033	AD33
	041	AD41
	042	AD42
	043	AD43
	044	AD44
	056	AD56

II Biology

Program	General Location	Computer Code		*Analysis Code
Deer Days Use	Between Hunter Cr. & Jimmy Gulch	BA01	-	PJ-CH-C
		BA02	-	PJ-CH-C
		BA03	-	PJ-CH-C
		BA04	-	PJ-CH-C
		BA05	-	PJ-CH-C
		BA06	-	PJ-CH-C
		BA07	-	PJ-CH-C
		BA08	-	PJ-CH-C
		BA09	-	PJ-CH-C
	North Side, Piceance Creek	BA10	-	PJ -D
		BA11	-	PJ -D
		BA12	-	PJ -D
		BA13	-	PJ -C
		BA14	-	PJ -C
		BA15	-	PJ -C
	South Side, Piceance Creek	BA16	-	PJ -D
	On Tract Between Cottonwood & Scandard	BA17	-	PJ-CH-C
		BA18	-	PJ-CH-C
		BA19	-	PJ -C
	On Tract Between Cottonwood & Sorghum	BA20	-	PJ-CH-D
		BA21	-	PJ-CH-D
		BA22	-	PJ -O
	On Tract Between Sorghum & W. Fork Stewart	BA23	-	PJ-CH-D
		BA24	-	PJ
		BA25	-	PJ-CH-C
	On Tract Between W. &. M. Fork Stewart	BA26	-	PJ -C
		BA27	-	PJ -C
	On Tract Between Willow & Scandard North End	BA28	-	PJ-CH-C
	On Tract Between Willow & Scandard S.E.	BA29	-	PJ-CH-C
	On Tract Between Cottonwood & Sorghum North	BA30	-	PJ-CH-C
	On Tract Between Cottonwood & Sorghum South	BA31	-	PJ-CH-C

*ANALYSIS CODES:

PJ-CH-C - Pinyon Juniper, Chained, Control Station (12)
PJ -C - Pinyon Juniper, Control Station (6)
PJ-CH-D - Pinyon Juniper, Chained, Development Station (3)
PJ -D - Pinyon Juniper, Development Station (6)

Table 4.2-1 (cont.)

Biology (Cont'd)

Programs: Deer Distribution & Migration and Road Kills

Mile Marker	Location	Computer Code	
		North & East of Piceance Creek Road	Meadows; South & West of Piceance Creek Road
41	White River City	BN41	BM41
40	Piceance Bridge	BN40	BM40
39	Lower Canyon	BN39	BM39
38	Piceance Canyon	BN38	BM38
37	Yellow Creek	BN37	BM37
36	Stinking Springs	BN36	BM36
35	Old Bridge	BN35	BM35
34	Little Hills Turnoff	BN34	BM34
33	Old Corrals & Buildings	BN33	BM33
32	Burk Ranch	BN32	BM32
31	Ranch	BN31	BM31
30		BN30	BM30
29		BN29	BM29
28	Bureau of Mines	BN28	BM28
27	Ryan Gulch	BN27	BM27
26	Pump Station	BN26	BM26
25		BN25	BM25
24	Rock School	BN24	BM24
23	AQ 021	BN23	BM23
22	Pat Johnson's Ranch	BN22	BM22
21	Hunter Creek	BN21	BM21
20	PL Gate	BN20	BM20
19	AQ 020	BN19	BM19
18	Sorghum, Cottonwood	BN18	BM18
17	Stewart Gulch Rd.	BN17	BM17
16	AQ Trailer 022	BN16	BM16
15	Oldland's Ranch	BN15	BM15
14	Oldland's Ranch	BN14	BM14
13	Pond and Cabin	BN13	BM13
12	Sprague Gulch	BN12	BM12
11	Cascade Gulch	BN11	BM11
10	13 Mile Gulch	BN10	BM10
9	14 Mile Gulch	BN09	BM09
8	Schutte Gulch	BN08	BM08
7	Robinson's Ranch	BN07	BM07
6		BN06	BM06
5	2 Old Cabins (35 MPH Curve)	BN05	BM05
4	McCarthy Gulch	BN04	BM04
3	Cow Creek	BN03	BM03
2	Mahogany Outcropping	BN02	BM02
1	Woodward Ranch	BN01	BM01
0	Rio Blanco Store	BN00	BM00

Table 4.2-1 (cont.)

Biology (Cont'd)

Programs	General Location	Computer Code		
Deer Mortality	North Side of Piceance Creek	BD01		
		BD02		
		BD03		
		BD04		
		BD05		
		BD06		
	South Side of Piceance Creek	BD07		
		BD08		
		BD09		
		BD10		
Deer Age Class	General Area of Tract	BE01		
Coyotte Abundance	8 Transects for Total for 30 miles	BF01		
	15 mi seg. near Hunter (Control)	BF02 thru BF08		
	15 mi seg. on & South of Tract (Development)			
Lagomorph Abundance	Identical Locations to deer use days	BA01 to BA31		
Small Mammals	Piceance Creek (Development)	BG01		
	On-Tract-west	BG02		
	Piceance Creek (Control)	BG03		
	On-Tract-east	BG04		
	Sprinkler Area Section B	BG05		
	Sprinkler Area (Control)	BG11		
	Sprinkler Area (Development	BG22		
	Sprinkler Area (Control)	BG33		
Avifauna				
Songbirds and Gamebirds	N.W. of Tract-near Jimmy PJ-CH-C	BH01		
	On-Tract-Scandard PJ- -D	BH02		
	On-Tract-Cottonwood PJ-CH-D	BH03		
	S. of Tract-Between W&N Fork Stewart PJ- C	BH04		
	Sprinkler	BH05		
Raptors	The entire Tract and surrounding study areas.	BI01		
Aquatic Ecology				
Benthos	USGS 09306007 (Control)	WU07		
	USGS 09306058 (Development)	WU58		
	USGS 09306061 (Development)	WU61		
Periphyton	Piceance Creek Upstream (Control)	WP01		
		WP02		
	Piceance Creek Downstream (Development)	WP03		
Water Quality	USGS 09306061 (Development)	WU61		
Vegetation				
Community Structure	Plots	*	**	***
	Chained pinyon juniper (1978)(Dev)	BJ01	BJ11	BJ21
	Chained pinyon juniper (1978)(Cont)	BJ02	BJ12	BJ22
	Upland sagebrush (1980)(Cont)	BJ03	BJ13	BJ23
	Bottomland sagebrush (1980)(Cont)	BJ04	BJ14	BJ24
	Pinyon juniper woodland (1979)(Dev)	BJ05	BJ15	BJ25
	Pinyon juniper woodland (1979)(Cont)	BJ06	BJ16	BJ26
Herb Productivity and Utilization	Identical locations to community structure	BJ01 thru BJ26		
	Plus			
	60 range cages in random locations	BK01 thru BK60		
	10 cages on S. facing PJ for baseline	BK61 thru BK70		
	20 cages for fertilization assessment	BK71 thru BK90		
Shrub Productivity and Utilization	Same stations as Deer Days Use Study	BA01 thru BA31		
General Condition	By aircraft over entire Tract area	Not in computer		

* Fenced (8')
** Open
*** Fenced (4')

Table 4.2-1 (cont.)

Biology (Cont'd)

Program	General Location	Computer Code
Micro Climate	MC Sta. 1	BC01
	2	BC02
	3	BC03
	4	BC04
	5	BC05
	6	BC06
	7	BC07
	8	BC08
	9	BC09
	13	BC13
Traffic Count	Rio Blanco Store	BT01
	Cattle Guard	BT02
	Rio Blanco Lake	BT03

III Noise

	Station Designation	Computer Code
Traffic Noise	Sta. II	NA02
	IX	NA09
	XV	NB15

IV Photography

P1	PA01
P2	PA02
P3	PA03
P4	PA04
P5	PA05
P6	PA06
P7	PA07
P8	PA08
P9	PA09
P10	PA10
P11	PA11
P12	PA12
P13	PA13
P14	PA14
P15	PA15
P16	PA16
P17	PA17
P18	PA18
P19	PA19
P20	PA20
P21	PA21
P22	PA22
P23	PA23
P24	PA24
P25	PA25
P26	PA26
P27	PA27
P28	PA28
P29	PA29
P30	PA30
P31	PA31
P32	PA32
P33	PA33
P34	PA34
P35	PA35

Table 4.2-1 (cont.)

V. Water

Program	Station Designation	Computer Code	Elevation
U.S.G.S. Stream Gauging Station	09304800	WU48	
	09306007	WU07	
	09306036	WU36	
	09306039	WU39	
	09306042	WU42	
	09306061	WU61	
	09306050	WU50	
	09306052	WU52	
	09306058	WU58	
	09306033	WU33	
	09306025	WU25	
	09306015	WU15	
	09306028	WU28	
	09306022	WU22	
	09306200	WU00	
	09306222	WU62	
	09306255	WU55	
Alluvial Wells	A-1	WA01	6282.2
	A-2	WA02	6284.5
	A-3	WA03	6448.6
	A-4	WA04	0000.0
	A-5	WA05	6345.0
	A-5A	WA55	6460.0
	A-5B	WA56	
	A-6	WA06	6360.0
	A-7	WA07	6383.8
	A-8	WA08	6409.0
	A-9	WA09	6540.2
	A-10	WA10	6610.6
	A-11	WA11	6503.8
	A-12	WA12	6691.8
	A-13	WA13	0000.0
Springs and Seeps	CB S-1	WS01	
	CB S-2	WS02	
	CB S-3	WS03	
	CB S-4	WS04	
	CB S-6	WS06	
	CB S-6A	WS66	
	CB S-7	WS07	
	CB S-8	WS08	
	CB S-9	WS09	
	CB S-10 (W-3)	WS10 (WS34)	
	CB Seep A	WS11	
	CER-1	WS21	
	B-3	WS22	
	H-3	WS23	
	F-3	WS24	
	Figure 4-A	WS25	
	W-4	WS26	
	W-9	WS27	
	CER-7	WS28	
	S-9	WS29	
	P3 & P3A	WS30	
	CER-6	WS31	
	W-2 (S-9)	WS32	
	S-2	WW33	
	W-3 (CB S-10)	WS34 (WS10)	
	Figure 4	WS35	
	S-11 (S-101)	WS36	0000.0
	S-102	WS12	
Precipitation	CB-020	AB20	
	CB-023	AB23	
	LH	WR01	
	M	WR02	
	SG	WR03	
	CG	WR04	
	JOS	WR05	
	EFPC	WR06	
	EMFPC	WR07	
	UCBW	WR08	

Table 4.2-1 (cont.)

V. Water (cont'd)

	Before Recompletions			Recompletion #1		
	Station	Code	Elevation	Station	Code	Date
Composite Wells:						
	GREENO 404	WV01	6411.0			
	OLDLAND 3	WV02	6490.0			
	GP-17X-BG	WV03				
	BUTE 25	WV04				
	LIBERTY BELL 12	WV05				
Seepage Monitoring Wells:						
	31X-12	WW12	0000.0		WW22	11-26-80
	41X-13-2	WW13				
Reinjection Wells:						
	11X-18	WI18	6950.0			
Ponds:						
	POND A	WN01				
	POND B	WN02				
	POND C	WN03				
	POND A SPRINGS	WN11				
	POND B SPRINGS	WN12				
	POND C SPRINGS	WN13				
	POND A INLET	WN21				
	POND B INLET	WN22				
	POND C INLET	WN23				
	POND A-B CROSSOVER	WN31				
	POND B OUTLET	WN32				
	POND C OUTLET	WN33				
	BACKWASH POND	WN04				
	BACKWASH POND SPRINGS	WN14				
	BACKWASH POND INLET	WN24				
	BACKWASH POND OUTLET	WN34				
	POND A-B DISCHARGE	WN40				
Shafts:						
	V/E SHAFT PROBE HOLES	WZ01				
	SERVICE SHAFT PROBE HOLES	WZ02				
	PRODUCTION SHAFT PROBE HOLES	WZ03				
	V/E SHAFT WATER RING	WZ11				
	SERVICE SHAFT WATER RING	WZ12				
	PRODUCTION SHAFT WATER RING	WZ13				
	V/E SHAFT SUMP	WZ21				
	SERVICE SHAFT SUMP	WZ22				
	PRODUCTION SHAFT SUMP	WZ23				
	V/E SHAFT	WZ31				
	PRODUCTION SHAFT	WZ33				
	SHAFT GROUT HOLE	WZ41				
Discharge Monitoring Stations						
	NO NAME GULCH	WU42				
	UPPER PICEANCE CREEK	WN41				
	LOWER PICEANCE CREEK	WN42				
	HUNTER CREEK	WU02				
	WILLOW CREEK	WU01				

Table 4.2-1 (cont.)

V. Water (cont'd)

Upper Aquifer Wells

Before Recompletions			Recompletion #1			Recompletion #2		
Station	Code	Elevation	Station	Code	Date	Station	Code	Date
CB-2	WX02	6737.0	CB-2	WD02	11-18-80			
CB-4	WX04	7057.3	CB-4	WE04	11-20-80			
SG-10A	WX10	6953.6	SG-10A-1	WE10	*	SG-10A-1	WG51	*
			SG-10A-2	WD10	*	SG-10A-2	WE51	
						SG10A- Annulus	WD51	
SG-1A	WX11	6425.0	SG-1A-1	WE11	12-12-80			
			SG-1A-2	WD11	12-12-80			
SG-1-2	WX12	6428.6	SG-1-2	WD12	11-01-80			
14X-7	WX14	6909.0	14X-7-1	WD14	11-15-80			
			14X-7-2	WD15	11-15-80			
SG-17-2	WX17	7038.6				SG-17-2	WE17	11-03-80
						SG-17-3	WD17	11-03-80
						SG-17-4	WC17	11-03-80
SG-18A	WX18	7386.6	SG-18A-1	WG18	12-02-80			
			SG-18A-2	WE18	12-01-80			
			SG-18A-3	WD18	12-02-80			
SG-19	WX19	6384.4						
SG-20	WX20	6358.0	SG-20-1	WG20	11-15-80			
			SG-20-2	WE20	11-15-80			
			SG-20-3	WD20	11-15-80			
SG-21	WX21	6813.3	SG-21-1	WH21	12-08-80			
			SG-21-2	WG21	12-08-80			
			SG-21-3	WE21	12-08-80			
			SG-21-4	WD21	12-09-80			
AT-1C-3	WX44	6906.0						
SG-11-3	WX55	6903.1				SG-11-3	WD52	10-18-80
SG-6-3	WX63	6890.7	SG-6-3	WD61	10-20-80			
SG-8-2	WX82							
SG-9-2	WX92	6873.0	SG-9-2	WE91	12-11-80			
			SG-9-3	WD91	12-11-80			
			SG-9-4	WC91	12-12-80			
32X-12	WX32	6830.3						
33X-1	WX33	6707.1						
41X-1	WX41	6460.0						
TH75-5A	WX64	7178.0						
TH75-13A	WX65	6390.0						
TH75-18A	WX67	6740.0						
TH75-9A	WX69	7350.0						
CER RB-D-02	WX71	6580.0						
TH75-15A	WX72	6805.0						
UNION 8-1	WX73	8142.3						
COLONY 12-596	WX74							
TH-5	WX75	7583.2						

Lower Aquifer Wells

After Completion			Recompletion #1			Recompletion #2		
Station	Code	Elevation	Station	Code	Date	Station	Code	Date
CB-1	WY01	6763.4	CB-1	WD01	11-14-80			
CB-3	WY03	6743.1	CB-3	WE03	11-18-80			
SG-10	WY09	6952.5	SG-10R	WG10		SG-10	WD90	
SG-1-1	WY12	6428.8	SG-1-1	WG12	11-1-80			
SG-17-1	WY18	7038.6	SG-17-1R	WY17		SG-17-1	WG17	11-03-80
AT-1C-1	WY45	6906.0						
AT-1C-2	WY46	6906.0						
SG-11-1	WY51	6903.1	SG-11-1R	WY52		SG-11-1	WG52	10-18-80
SG-11-2	WY54	6903.1				SG-11-2	WE52	10-18-80
SG-6-1	WY61	6890.7	SG-6-1	WE61	10-20-80			
SG-6-2	WY62	6890.7	SG-6-2	WG61	10-20-80			
SG-8	WY80	6540.8	SG-8R	WY81				
SG-9-1	WY91	6873.0	SG-9-1	WG91	12-11-80			
AT-1	WY44							
TH75-5B	WY64	7178.0						
TH75-13B	WY65	6390.0						
EQUITY-1	WY66	6286.0						

*Recompletion #1 not satisfactory for these strings; Use #2

Table 4.2-1 (cont.)

V. Water (cont'd)

Lower Aquifer Wells (cont'd)

TH75-10B	WY68	6840.0
TH75-9B	WY69	7350.0
EQUITY-SULFUR-1A	WY70	7070.0
CER RB-D-03	WY71	6580.0
TH75-15B	WY72	6805.0
TG71-3	WY75	6820.0
TG71-5	WY76	6865.0
GETTY 9-40	WY77	7777.8
TG71-4	WY78	7145.0
EQUITY BS-13	WY79	7020.0

New Wells

Station	Code	Date	Elevation
SG-17A	WD57	12-02-80	
AT-1D-1	WG41	11-16-80	6909.0
AT-1D-2	Abandoned		
AT-1D-3	WD41	11-16-80	6909.0
AT-1A	WV37		6909.0
AT-1A1	WX38		6909.0
AT-1B	WV40		6909.0

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4.3 Station Coordinates

Environmental monitoring stations have been specified by station computer code, latitude and longitude, township and range, Colorado State coordinates and elevations for this report period. In cases where stations represent biological transects several meters in length, the coordinates reported are those of a point on the map near the station label. A jacket map of the Tract area (Figure 4.3-1) showing all monitoring stations on and near Tract C-b, required by the Developmental Monitoring Program, and a jacket map (Vol. I, Figure 2.2-1) of off tract monitoring stations, required by Water Augmentation Plan, are designated by their four-digit computer station codes.

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
I. AIR QUALITY AND METEOROLOGY				
AA23	39° 47' 43" 108° 12' 57"	T3S R96W Sec 18 NW1/4, NW1/4, NW1/4	N 180,000 E 1,237,045	6950'
AB20	39° 50' 10" 108° 13' 08"	T2S R97W Sec 36 NE1/4, SE1/4, NE1/4	N 194,845 E 1,236,605	6280'
*AB23	39° 47' 44"* 108° 12' 54"	T3S R96W Sec 18 NE1/4, NW1/4, NW1/4	N 180,000 E 1,237,234	6950'
AB24 *	39° 48' 49" 108° 12' 21"	T3S R96W Sec 6 NE1/4, SW1/4, SE1/4	N 186,542 E 1,240,000	6750'
AC20	39° 50' 08" 108° 13' 06"	T2S R97W Sec 36 NE1/4, SE1/4, NE1/4	N 194,594 E 1,236,794	6310'
AD42	39° 48' 58" 108° 13' 08"	T3S R97W Sec 1 SE1/4, NE1/4, SE1/4	N 187,548 E 1,236,417	6720'
AD56* *	39° 49' 31" 108° 12' 23"*	T3S R96W Sec 6 NE1/4, NW1/4, NE1/4	N 190,760 E 1,240,005	6380'
II. BIOLOGY				
*BA01 *	39° 50' 15"* 108° 16' 12"*	T2S R97W Sec 34 SW1/4, NE1/4, NW1/4	N 195,788 E 1,222,268	6480'
*BA02 *	39° 50' 3"* 108° 16' 4"*	T2S R97W Sec 34 SE1/4, SW1/4, NW/14	N 194,594 E 1,222,079	6500'
BA03	39° 49' 32" 108° 16' 5"	T3S R97W Sec 3 NE1/4, NE1/4, NW1/4	N 191,388 E 1,222,708	6640'
BA04	39° 49' 12" 108° 15' 46"	T3S R97W Sec 3 NE1/4, NW1/4, SE1/4	N 189,371 E 1,224,091	6600'
BA05	39° 48' 39" 108° 16' 14"	T3S R97W Sec 3 SW1/4, SE1/4, SW1/4	N 186,039 E 1,221,828	6720'
BA06	39° 48' 19" 108° 16' 19"	T3S R97W Sec 10 SE1/4, SW1/4, NW1/4	N 184,028 E 1,221,388	6780'
BA07	39° 47' 49" 108° 16' 28"	T3S R97W Sec 10 NW1/4, SW1/4, SW1/4	N 181,074 E 1,220,571	6860'
BA08	39° 47' 33" 108° 16' 38"	T3S R97W Sec 16 NE1/4, SE1/4, NE1/4	N 179,497 E 1,218,748	6860'
BA09	39° 47' 9" 108° 16' 49"	T3S R97W Sec 16 SE1/4, NW1/4, SE1/4	N 177,108 E 1,218,805	6940'
BA10	39° 50' 48" 108° 14' 20"	T2S R97W Sec 25 SW1/4, SW1/4, NW1/4	N 198,868 E 1,231,137	6600'
BA11	39° 50' 46" 108° 13' 42"	T2S R97W Sec 25 SE1/4, NE1/4, SW1/4	N 198,554 E 1,234,091	6580'
BA12	39° 50' 29" 108° 13' 8"	T2S R97W Sec 25 SE1/4, SE1/4, SE1/4	N 196,731 E 1,236,668	6600'
BA13	39° 49' 52" 108° 12' 5"	T2S R96W Sec 31 SE1/4, NE1/4, SE1/4	N 192,834 E 1,241,451	6600'

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* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U.S. Government Printing Office.

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
BA14	39° 49' 52" 108° 10' 55"	T2S R96W Sec 33 SW1/4, NW1/4, SW1/4	N 192,645 E 1,246,920	6700'
BA15	39° 49' 46" 108° 10' 30"	T2S R96W Sec 33 NW1/4, SE1/4, SW1/4	N 192,079 E 1,248,868	6600'
BA16	39° 49' 56" 108° 14' 9"	T2S R97W Sec 36 NW1/4, NW1/4, SW1/4	N 193,525 E 1,231,828	6500'
BA17	39° 48' 32" 108° 14' 38"	T3S R97W Sec 11 SW1/4, NW1/4, NE1/4	N 185,097 E 1,229,308	6680'
BA18	39° 47' 49" 108° 14' 25"	T3S R97W Sec 14 NW1/4, NE1/4, NE1/4	N 180,760 E 1,230,131	6820'
BA19	39° 47' 56" 108° 14' 2"	T3S R97W Sec 12 NE1/4, SW1/4, SW1/4	N 181,451 E 1,232,017	6680'
BA20	39° 48' 0" 108° 12' 32"	T3S R96W Sec 7 SE1/4, SE1/4, NW1/4	N 182,142 E 1,238,554	6860'
BA21	39° 4' 6" 108° 12' 33"	T3S R96W Sec 7 NE1/4, SE1/4, SW1/4	N 181,640 E 1,239,057	6820'
BA22	39° 47' 4" 108° 12' 5"	T3S R96W Sec 18 SE1/4, NE1/4, SW1/4	N 176,165 E 1,238,742	6860'
BA23	39° 48' 51" 108° 12'	T3S R96W Sec 7 NE1/4, SE1/4, SE1/4	N 181,954 E 1,241,137	6840'
BA24	39° 48' 51" 108° 11' 51"	T3S R96W Sec 5 NE1/4, SW1/4, SW1/4	N 186,668 E 1,242,398	6640'
BA25	39° 47' 16" 108° 11' 46"	T3S, R96W Sec 17 NW1/4, NE1/4, SW1/4	N 177,045 E 1,242,457	7000'
BA26	39° 48' 8" 108° 10' 52"	T3S, R96W Sec 9 NW1/4, NW1/4, SW1/4	N 182,142 E 1,246,857	6840'
BA27	39° 47' 4" 108° 11' 13"	T3S R96W Sec 16 NW1/4, SW1/4, SW1/4	N 175,725 E 1,245,034	7020'
BA28	39° 48' 28" 108° 14' 29"	T3S R97W Sec 11 SE1/4, NW1/4, NE1/4	N 184,657 E 1,230,000	6680'
BA29a	39° 47' 43" 108° 14' 16"	T3S R97W Sec 14 NE1/4, NE1/4, NE1/4	N 180,068 E 1,230,885	6860'
BA29b	39° 47' 38" 108° 14' 23"	T3S R97W Sec 14 SW1/4, NE1/4, NE1/4	N 179,622 E 1,230,320	6900'
BA30	39° 48' 49" 108° 12' 35"	T3S R96W Sec 6 NE1/4, SE1/4, SW1/4	N 186,542 E 1,238,931	6720'
BA31	39° 48' 23" 108° 12' 40"	T3S R96W Sec 7 NE1/4, SE1/4, NW1/4	N 183,965 E 1,238,491	6820'
BC01	39° 47' 56" 108° 11' 58"	T3S R97W Sec 8 NW1/4, SW1/4, SW1/4	N 181,137 E 1,241,640	6860'
BC02	39° 47' 48" 108° 14' 22"	T3S R97W Sec 11 SW1/4, SE1/4, SE1/4	N 180,634 E 1,230,382	6860'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U.S. Government Printing Office.

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
BC03	39° 46' 57" 108° 12' 1"	T3S R96W Sec 17 SW1/4 SW1/4, SW1/4	N 175,097 E 1,241,262	7100'
BC04	39° 47' 28" 108° 13' 32"	T3S R97W Sec 13 NW1/4, SW1/4, NE1/4	N 178,491 E 1,234,217	6700'
BC05	39° 48' 3" 108° 11' 58"	T3S R96W Sec 8 SE1/4, NW1/4, SW1/4	N 181,765 E 1,241,702	6840'
BC06	39° 47' 54" 108° 10' 44"	T3S R96W Sec 9 SE1/4, SW1/4, SW1/4	N 180,697 E 1,247,422	6900'
BC07	39° 47' 44" 108° 13' 17"	T3S R97W Sec 13 NW1/4, NE1/4, NE1/4	N 180,068 E 1,235,474	6940'
BC08	39° 50' 30" 108° 13' 36"	T2S R97W Sec 25 NW1/4, SW1/4, SW1/4	N 196,920 E 1,234,468	6350'
BC09	39° 49' 30" 108° 11' 53"	T3S R96W Sec 5 NE1/4, NW1/4, NW1/4	N 190,634 E 1,242,331	6400'
BC13	39° 47' 19" 108° 11' 20"	T3S R96W Sec 17 NE1/4, NW1/4, SE1/4	N 177,234 E 1,244,531	6700'
BD01	39° 50' 59" 108° 14' 26"	T2S R97W Sec 26 SE1/4, SE1/4, NE1/4	N 200,000 E 1,230,697	6380'
BD02	39° 50' 44" 108° 13' 55"	T2S R97W Sec 25 NW1/4, NE1/4, SW1/4	N 198,428 E 1,233,022	6370'
BD03	39° 50' 34" 108° 12' 57"	T2S R96W Sec 30 SW1/4, SW1/4, SW1/4	N 197,171 E 1,237,548	6420'
BD04	39° 50' 3" 108° 12' 19"	T2S R96W Sec 31 SW1/4, SE1/4, NE1/4	N 194,028 E 1,240,445	6420'
BD05	39° 50' 9" 108° 11' 41"	T2S R96W Sec 32 NW1/4, SE1/4,NW1/4	N 194,468 E 1,243,400	6420'
BD06	39° 49' 46" 108° 10' 34"	T2S R96W Sec 33 NW1/4, SE1/4, SW1/4	N 192,017 E 1,248,554	6500'
BD07	39° 49' 51" 108° 13' 16"	T2S R97W Sec 36 SW1/4, NE1/4, SE1/4	N 192,897 E 1,235,914	6380'
BD08	39° 49' 46" 108° 12' 43"	T2S R96W Sec 31 NW1/4, SE1/4, SW1/4	N 192,394 E 1,238,491	6360'
BD09	39° 49' 26" 108° 12' 28"	T3S R96W Sec 6 SW1/4, NW1/4, NE1/4	N 190,257 E 1,239,559	6410'
BD10	39° 49' 17" 108° 11' 49"	T3S R96W Sec 5 NE1/4, SW1/4, NW1/4	N 189,245 E 1,242,582	6420'
	Coordinates Picked Near Transect Map Code Level			
BF01	39° 47' 53" 108° 16' 35"	T3S R97W Sec 9 NE1/4, SE1/4, SE1/4	N 181,514 E 1,220,068	6900'
BF02	39° 48' 02" 108° 14' 27"	T3S R97W Sec 11 SW1/4, NE1/4, SE1/4	N 182,017 E 1,230,068	6800'
BF03	39° 46' 40" 108° 13' 32"	T3S R97W Sec 24 NW1/4, SW1/4, NE1/4	N 173,651 E 1,234,091	6860'

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ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
BF04	39° 46' 25" 108° 13' 04"	T3S R97W Sec 24 NE1/4, NE1/4, SE1/4	N 172,017 E 1,236,228	7190'
BF05	39° 47' 30" 108° 12' 9"	T3S R96W Sec 18 NE1/4, SE1/4, NE1/4	N 178,491 E 1,240,697	6980'
BF06	39° 47' 44" 108° 11' 43"	T3S R96W Sec 17 NW1/4, NE1/4, NW1/4	N 179,874 E 1,242,771	6940'
BF07	39° 46' 09" 108° 11' 49"	T3S R96W Sec 20 SW1/4, SE1/4, SW1/4	N 170,257 E 1,242,017	6820'
BF08	39° 47' 31" 108° 11' 9"	T3S R96W Sec 16 NE1/4, SW1/4, NW1/4	N 178,491 E 1,245,411	6950'
BG01	39° 50' 17" 108° 13' 58"	T2S R97W Sec 36 SW1/4, NE1/4, NW1/4	N 195,662 E 1,232,708	6360'
BG02	39° 47' 46" 108° 13' 23"	T3S R97W Sec 13 NE1/4, NW1/4, NE1/4	N 180,320 E 1,234,971	6940'
BG03	39° 49' 39" 108° 12' 10"	T2S R96W Sec 31 SE1/4, SE1/4, SE1/4	N 191,577 E 1,241,011	6300'
BG04	39° 47' 40" 108° 10' 55"	T3S R96W Sec 16 SW1/4, NW1/4, NW1/4	N 179,371 E 1,246,542	6860'
BH01	39° 48' 46" 108° 15' 59"	T3S R97W Sec 5 SE1/4, SE1/4, SW1/4	N 186,731 E 1,223,022	6660'
BH02	39° 47' 59" 108° 13' 38"	T3S R97W Sec 12 SW1/4, SW1/4, SE1/4	N 181,640 E 1,233,902	6780'
BH03	39° 48' 14" 108° 13' 1"	T3S R96W Sec 7 SW1/4, NW1/4, SW1/4	N 183,085 E 1,236,794	6840'
BH04	39° 46' 48" 108° 10' 56"	T3S R96W Sec 20 NE1/4, SE1/4, NE1/4	N 174,091 E 1,246,291	7120'
BJ01	39° 47' 56" 108° 11' 58"	T3S R96W Sec 8 NW1/4, SW1/4, SW1/4	N 181,137 E 1,241,640	6860'
BJ02	39° 47' 43" 108° 14' 23"	T3S R97W Sec 14 NW1/4, NE1/4, NE1/4	N 180,194 E 1,230,320	6870'
BJ03	39° 46' 58" 108° 12' 3"	T3S R96W Sec 17 SW1/4, SW1/4, SW1/4	N 175,285 E 1,241,074	7100'
BJ04	39° 47' 24" 108° 13' 30"	T3S R97W Sec 13 SE1/4, SW1/4, NE1/4	N 178,114 E 1,234,405	6700'
BJ05	39° 48' 08" 108° 11' 54"	T3S R96W Sec 8 SE1/4, NW1/4, SW1/4	N 182,268 E 1,242,017	6840'
BJ06	39° 47' 53" 108° 10' 42"	T3S R96W Sec 9 SE1/4, SW1/4, SW1/4	N 180,634 E 1,247,611	6880'

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* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U. S. Government Printing Office.

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
III. NOISE				
NA01		T3S R96W Sec 1	N 187,422 E 1,234,405	
NA02	39° 50' 43" 108° 14' 19"	T2S R97W Sec 25 SW1/4, NW1/4, SW1/4	N 198,302 E 1,231,200	6520'
NA09	39° 49' 08" 108' 14' 17"	T3S R97W Sec 2 SE1/4, SE1/4, NE1/4	N 188,679 E 1,231,074	6660'
NA22	39° 50' 43" 108° 14' 19"	T2S R97W Sec 25 SW1/4, NW1/4, SW1/4	N 198,302 E 1,231,200	6520'
NB15	39° 49' 04" 108° 13' 26"	T3S R97W Sec 1 NE/14, NW1/4, SE1/4	N 188,177 E 1,234,971	6720'
IV. PHOTOGRAPHY				
PA01	39° 51' 50" 108° 11' 23"	T2S R96W Sec 20 SW1/4, SW1/4, NE1/4	N 204,714 E 1,245,097	7420'
PA02	39° 50' 44" 108° 14' 5"	T2S R97W Sec 25 SE1/4, NW1/4, SW1/4	N 198,365 E 1,232,268	6560'
PA03	39° 50' 23" 108° 14' 7"	T2S R97W Sec 36 NE1/4, NW1/4, NW1/4	N 196,291 E 1,232,079	6300'
PA04	39° 49' 58" 108° 13' 11"	T2S R97W Sec 26 NE/14, NE1/4, SE1/4	N 193,651 E 1,236,354	6410'
PA05	39° 49' 03" 108° 14' 41"	T3S R97W Sec 2 NW1/4, NW1/4, SE1/4	N 188,239 E 1,229,119	6410'
PA06	39° 48' 55" 108° 14' 5"	T3S R97W Sec 1 SW1/4, NW1/4, SW1/4	N 187,422 E 1,231,954	6770'
PA07	39° 48' 55" 108° 13' 57"	T3S R97W Sec 1 SE1/4, NW1/4, SW1/4	N 187,359 E 1,232,582	6770'
PA08	39° 49' 18" 108° 13' 49"	T3S R97W Sec 1 NW1/4, SE1/4, NW1/4	N 189,685 E 1,233,274	6760'
PA09	39° 48' 53" 108° 12' 20"	T3S R96W Sec 6 NE1/4, SW1/4, SE1/4	N 186,920 E 1,240,131	6750'
PA10	39° 49' 30" 108° 11' 50"	T3S R96W Sec 5 NE1/4, NW1/4, NW1/4	N 190,634 E 1,242,582	6430'
PA11	39° 48' 41" 108° 11' 47"	T3S R96W Sec.5 SW1/4, SE1/4, SW1/4	N 185,662 E 1,242,645	6700'
PA12	39° 48' 47" 108° 11' 28"	T3S R96W Sec 5 SW1/4, SW1/4, SE1/4	N 186,228 E 1,244,154	6740'
PA13	39° 49' 33" 108° 11' 44"	T2S R96W Sec 32 SE1/4, SW1/4, SE1/4	N 190,885 E 1,243,085	6500'
PA14	39° 48' 22" 108° 14' 29"	T3S R97W Sec 11 NE1/4, SW1/4, NE1/4	N 184,091 E 1,229,937	6700'
PA15	39° 48' 21" 108° 14' 3"	T3S R97W Sec 12 NE1/4, SW1/4, NW1/4	N 183,902 E 1,232,017	6670'
PA16	39° 47' 56" 108° 13' 49"	T3S R97W Sec 12 NE1/4, SE1/4, SW1/4	N 181,325 E 1,233,022	6730'

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ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
PA17	39° 48' 35" 108° 13' 19"	T3S R97W Sec 12 NW1/4, NE1/4, NE1/4	N 185,285 E 1,235,474	6760'
PA18	39° 48' 31" 108° 13' 10"	T3S R97W Sec 12 SW1/4, NE1/4, NE1/4	N 184,782 E 1,236,165	6820'
PA19	39° 47' 50" 108° 12' 57"	T3S R96W Sec 7 SW1/4, SW1/4, SW1/4	N 180,697 E 1,237,045	6870'
PA20	39° 48' 4" 108° 12' 47"	T3S R96W Sec 7 SW1/4, NE1/4, SW1/4	N 182,017 E 1,237,862	6890'
PA21	39° 47' 46" 108° 12' 5"	T3S R96W Sec 18 NE1/4, NE1/4, NE1/4	N 180,068 E 1,241,074	6920'
PA22	39° 48' 16" 108° 11' 34"	T3S R96W Sec 8 SE1/4, SE1/4, NW1/4	N 183,085 E 1,243,588	6860'
PA23	39° 48' 38" 108° 10' 57"	T3S R96W Sec 8 NE1/4, NE1/4, NE1/4	E 185,222 E 1,246,542	6540'
PA24	39° 47' 57" 108° 10' 44"	T3S R96W Sec 9 NE1/4, SW1/4, SW1/4	N 181,074 E 1,247,422	6880'
PA25	39° 48' 10" 108° 10' 24"	T3S R96W Sec 9 NE1/4, NE1/4, SW1/4	N 182,268 E 1,248,994	6520'
PA26	39° 47' 25" 108° 13' 39"	T3S R97W Sec 13 SE1/4, SE1/4, NW1/4	N 178,239 E 1,233,714	6770'
PA27	39° 47' 22" 108° 12' 58"	T3S R96W Sec 18 SW1/4, SW1/4, NW1/4	N 177,862 E 1,236,857	6980'
PA28	39° 47' 8" 108° 12' 58"	T3S R96W Sec 18 NW1/4, SW1/4, SW1/4	N 176,417 E 1,236,794	7010'
PA29	39° 46' 57" 108° 11' 20"	T3S R96W Sec 17 SW1/4, SW1/4, SE1/4	N 175,034 E 1,244,405	6700'
PA30	39° 46' 58" 108° 10' 48"	T3S R96W Sec 16 SW1/4, SW1/4, SW1/4	N 175,034 E 1,246,920	7120'
PA31	39° 47' 46" 108° 10' 45"	T3S R96W Sec 16 NE1/4, NW1/4, NW1/4	N 179,874 E 1,247,359	6920'
PA32	39° 47' 25" 108° 10' 18"	T3S R96W Sec 16 SW1/4, SW1/4, NE1/4	N 177,737 E 1,249,371	6640'
PA33	39° 46' 58" 108° 13' 00"	T3S R96W Sec 18 SW1/4, SW1/4, SW1/4	N 175,411 E 1,236,605	7060'
PA34	39° 46' 53" 108° 12' 5"	T3S R96W Sec 19 NE1/4, NE1/4, NE1/4	N 174,720 E 1,240,948	7120'
PA35	39° 45' 21" 108° 13' 6"	T3S R97W Sec 25 NE1/4, SE1/4, SE1/4	N 165,537 E 1,235,851	7400'
V. WATER				
WA01	39° 50' 31" 108° 13' 54"	T2S R97W Sec 25 SW1/4, SE1/4, SW1/4	N 197,108 E 1,233,085	6300'

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ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WA02	39° 50' 10" 108° 14' 37"	T2S R97W Sec 35 NE1/4, SW1/4, NE1/4	N 195,034 E 1,229,685	6280'
WA03	39° 48' 48" 108° 14' 32"	T3S R97W Sec 2 NE1/4, SW1/4, SE1/4	N 186,731 E 1,229,811	6460'
WA04	39° 47' 26" 108° 13' 35"	T3S R97W Sec 13 SW1/4, SW1/4, NE1/4	N 178,302 E 1,234,028	6700'
WA05	39° 50' 4" 108° 13' 14"	T2S R97W Sec 36 SW1/4, SE1/4, NE1/4	N 194,217 E 1,236,102	6330'
WA06	39° 49' 36" 108° 12' 25"	T2S R96W Sec 31 SE1/4, SW1/4, SE1/4	N 191,262 E 1,239,874	6360'
WA07	39° 49' 31" 108° 11' 59"	T3S R96W Sec 5 NW1/4, NW1/4, NW1/4	N 190,697 E 1,241,891	6370'
WA08	39° 49' 12" 108° 11' 8"	T3S R96W Sec 5 SW1/4, SE1/4, NE1/4	N 188,679 E 1,245,788	6400'
WA09	39° 48' 10" 108° 10' 22"	T3S R96W Sec 9 NE1/4, NE1/4, SW1/4	N 182,268 E 1,249,182	6420'
WA10	39° 47' 25" 108° 10' 24"	T3S R96W Sec 16 SE1/4, SE1/4, NW1/4	N 177,800 E 1,248,931	6580'
WA11	39° 48' 18" 108° 11' 7"	T3S R96W Sec 8 SW1/4, SE1/4, NE1/4	N 183,211 E 1,245,725	6550'
WA12	39° 46' 58" 108° 11' 25"	T3S R96W Sec 17 SW1/4, SW1/4, SE1/4	N 175,159 E 1,244,028	6700'
WA13	39° 47' 13" 108° 12' 34"	T3S R96W Sec 18 SW1/4, NW1/4, SE1/4	N 176,857 E 1,238,679	6840'
WC91/WD91 WE91/WG91	39° 47' 48" 108° 14' 20"	T3S R97W Sec 11 SE1/4, SE1/4, SE1/4	N 180,634 E 1,230,571	6873.0'
WC17/WD17 WE17/WG17	39° 46' 58" 108° 10' 51"	T3S R96W Sec 16 SW1/4, SW1/4, SW1/4	N 175,034 E 1,246,668	7038.6'
WD01	39° 48' 52" 108° 14' 3"	T3S R96W Sec 1 NE1/4, SW1/4, SW1/4	N 187,045 E 1,232,079	6763.4'
WD02	39° 48' 56" 108° 12' 22"	T3S R96W Sec 6 SE1/4, NW1/4, SE1/4	N 197,234 E 1,240,000	6737.0'
WD11/WE11			N 187,171 E 1,229,600	6425.0'
WD12/WG12	39° 48' 52" 108° 14' 36"	T3S R97W Sec 2 NE1/4, SW1/4, SE1/4	N 187,171 E 1,229,497	6428.8'
WD14/WD15				6909.0'
WD18/WE18 WG18			N 165,438 E 1,235,125	7386.6'
WD19	39° 49' 31" 108° 11' 59"	T3S R96W Sec 5 NW1/4, NW1/4, NW1/4	N 190,760 E 1,241,891	6384.4'

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ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WD20/WE20 WG20	39° 49' 33" 108° 12' 24"	T3S R96W Sec 31 SE1/4, SW1/4, SE1/4	N 191,011 E 1,239,937	6358.0'
WD21/WE21 WG21/WH21	39° 48' 57" 108° 13' 24"	T3S R97W Sec 13 SE1/4, SW1/4, SE1/4	N 175,348 E 1,234,782	6813.3'
WD41/WE41 WG41		T3S R96W Sec 7	N 182,000 E 1,238,000	6909.0'
WD51/WE51 WG51	39° 47' 36" 108° 13' 06"	T3S R97W Sec 13 NE1/4, NE1/4, NE1/4	N 180,257 E 1,236,291	6953.6'
WD52/WE52 WG52	39° 47' 48" 108° 12' 7"	T3S R96W Sec 7 SE1/4, SE1/4, SE1/4	N 180,320 E 1,240,948	6903.1'
WD57				7036.0'
WD61/WE61 WG61	39° 48' 13" 108° 12' 32"	T3S R96W Sec 7 NW1/4, NW1/4, SE1/4	N 182,897 E 1,239,057	6890.7'
WD90			N 180,312 E 1,236,375	6952.5'
WE03	39° 48' 51" 108° 11' 29"	T3S R96W Sec 5 NW1/4, SW1/4, SE1/4	N 186,605 E 1,244,091	6743.1'
WE04	39° 47' 11" 108° 12' 4"	T3S R96W Sec 17 SE1/4, NW1/4, SW1/4	N 176,542 E 1,241,074	7057.3'
WI18			N 180,300 E 1,236,375	6950.0'
WP01	39° 49' 35" 108° 11' 2"	T2S R96W Sec 32 SE1/4, SE1/4, SE1/4	N 190,948 E 1,246,291	6380'
WP02	39° 49' 41" 108° 12' 2"	T2S R96W Sec 32 NW1/4, SW1/4, SW1/4	N 1,191,702 E 1,241,702	6300'
WP03	39° 51' 03" 108° 15' 27"	T2S R97W Sec 26 NW1/4, SW1/4, NW1/4	N 200,502 E 1,225,977	6220'
WR01	40° 00' 108° 12'	T1S R96W Sec 6	OFF TRACT	6140'
WR02	40° 02'	T1N R94W Sec 7	OFF TRACT	6347'
WR03		T4S R97W Sec 34	OFF TRACT	
WR04		T2S R100W Sec 14	OFF TRACT	
WR05		T5S R94W Sec 26	OFF TRACT	
WR06		T6S R94W Sec 2	OFF TRACT	
WR07			OFF TRACT	
WS01	39° 49' 30" 108° 11' 2"	T3S R96W Sec 5 NE1/4, NE1/4, NE1/4	N 190,445 E 1,246,291	6380'
WS02	39° 48' 3" 108° 10' 16"	T3S R96W Sec 9 SW1/4, NW1/4, SE1/4	N 181,577 E 1,249,622	6540'

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ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WS03	39° 49' 1" 108° 11' 9"	T3S R96W Sec 5 NW1/4, NE1/4, NE1/4	N 190,634 E 1,245,788	6360'
WS04	39° 48' 1" 108° 10' 13"	T3S R96W Sec 9 NE1/4, SW1/4, SE1/4	N 181,388 E 1,249,374	6550'
WS06	39° 50' 23" 108° 14' 38"	T2S R97W Sec 35 NE1/4, NW1/4, NE1/4	N 196,354 E 1,229,622	6260'
WS07	39° 50' 17" 108° 14' 33"	T2S R97W Sec 35 SW1/4, NE1/4, NE1/4	N 195,788 E 1,230,000	6280'
WS08	39° 48' 57" 108° 14' 48"	T3S R97W Sec 11 SE1/4, NE1/4, SE1/4	N 187,674 E 1,228,554	6400'
WS09	39° 47' 51" 108° 14' 53"	T3S R97W Sec 14 NW1/4, NE1/4, SW1/4	N 181,011 E 1,227,988	6550'
WS10	39° 47' 16" 108° 15' 2"	T3S R97W Sec 2 SE1/4, NE1/4, SW1/4	N 177,485 E 1,227,171	6580'
WS21	39° 51' 20" 108° 19' 15"	T2S, R97W, Sec 19 SW1/4, SE1/4	OFF TRACT	
WS22	39° 49' 29" 108° 24' 56"	T2S, R98W, Sec 32 SW1/4, SE1/4	OFF TRACT	
WS23	39° 47' 22" 108° 17' 57"	T3S, R97W, Sec 17 NW1/4, SE1/4	OFF TRACT	
WS24	39° 46' 27" 108° 22' 43"	T3S, R98W, Sec 22 NW1/4, SE1/4	OFF TRACT	
WS25	39° 42' 56" 108° 29' 03"	T4S, R99W, Sec 10 NE1/4, SE1/4	OFF TRACT	
WS26	39° 47' 37" 108° 15' 51"	T3S, R97W, Sec 27 Center	OFF TRACT	
WS27	39° 40' 51" 108° 16' 50"	T4S, R97W, Sec 21 SW1/4, SE1/4	OFF TRACT	
WS28	39° 44' 50" 108° 10' 05"	T3S, R96W, Sec 33 SW1/4, NE1/4	OFF TRACT	
WS29	39° 40' 55" 108° 12' 50"	T4S, R96W, Sec 19 SW1/4, SW1/4	OFF TRACT	
WS30	39° 47' 42" 108° 06' 09"	T3S, R95W, Sec 18 NW1/4, NW1/4	OFF TRACT	
WS31	39° 48' 25" 108° 10' 34"	T3S, R96W, Sec 9 SE1/4, NW1/4	N 184,187 E 1,248,184	
WS32	39° 47' 36" 108° 14' 59"	T3S, R97W, Sec 14 NE1/4, NW1/4	OFF TRACT	
WS33	39° 47' 18" 108° 10' 22"	T3S, R96W, Sec 16 NE1/4, SW1/4	OFF TRACT	
WS34	39° 47' 17" 108° 15' 03"	T3S, R97W, Sec 14 NW1/4, SW1/4	OFF TRACT	

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ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE+	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WS36			N 185,500 E 1,247,000	
WU01		T3S R97W Sec 22 E1/4, N1/4, E1/4	N 170,375 E 1,225,375	
WU02		T3S R97W Sec 8 SE1/4, S1/4, E1/4	OFF TRACT	
WU07	39° 49' 31" 108° 10' 59"	T3S R96W Sec 5 NE1/4, NE1/4, NE1/4	N 190,634 E 1,246,542	6400
WU15	39° 47' 20" 108° 10' 23"	T3S R96W Sec 16 NE1/4, NE1/4, SW1/4	N 177,234 E 1,248,931	6600
WU22	39° 48' 45" 108° 10' 60"	T3S R96W Sec 5 SE1/4, SE1/4, SE1/4	N 185,914 E 1,246,354	6460
WU25	39° 46' 57" 108° 11' 21"	T3S R96W Sec 17 SE1/4, SW1/4, SE1/4	N 175,097 E 1,244,342	6680'
WU28	39° 48' 42" 108° 11' 0	T3S R96W Sec 5 SE1/4, SE1/4, SE1/4	N 185,562 E 1,246,291	6460'
WU33	39° 47' 15" 108° 12' 34"	T3S R96W Sec 18 SE1/4, NE1/4, SW1/4	N 177,045 E 1,238,742	6860'
WU36	39° 49' 28" 108° 11' 54"	T3S R96W Sec 5 NE1/4, NW1/4, NW1/4	N 190,382 E 1,242,268	6380'
WU39	39° 49' 34" 108° 12' 27"	T2S R96W Sec 31 SW1/4, SW1/4, SE1/4	N 191,137 E 1,239,685	6380'
WU42	39° 50' 3" 108° 13' 13"	T2S R97W Sec 36 SE1/4, SE1/4, NE1/4	N 194,091 E 1,236,228	6430'
WU45	39°50'8" 108°13'14"	T2S R97W Sec 36 SE1/4, NE1/4		
WU50	39° 47' 43" 108° 13' 39"	T3S R97W Sec 13 NE1/4, NE1/4, NW1/4	N 180,000 E 1,233,714	6660'
WU52	39° 48' 49" 108° 14' 34"	T3S R97W Sec 2 NE1/4, SW1/4, SE1/4	N 186,857 E 1,229,685	6460'
WU58	39° 50' 12" 108° 14' 36"	T2S R97W Sec 35 NE1/4, SW1/4, NE1/4	N 195,222 E 1,229,748	6280'
WU61	39° 51' 3" 108° 15' 31"	T2S R97W Sec 27 NE1/4, SE1/4, NE1/4	N 220,502 E 1,225,600	6220'
WV01	39° 49' 26" 108° 16' 39"	T3S R97W Sec 4	OFF TRACT	6411'
WV02	39° 48' 35" 108° 08' 49"	T3S R96W Sec 10	OFF TRACT	6490'
WV03	39° 48' 00" 108° 05' 11"			
WV04		T4S R96W Sec 9	N 675,219 E 1,249,792	

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+ Multiple station codes at the same location indicates samples taken at different depths.

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE+	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WV05	39° 41' 53" 108° 05' 24"	T4S R95W Sec 18	OFF TRACT	7420'
WV37		T3S R96W Sec 7	N 181,750 E 1,238,250	6909.0'
WV40		T3S R96W Sec 7	N 181,750 E 1,238,125	6909.0'
WW12	39° 48' 42" 108° 13' 29"	T3S R97W Sec 1 SE1/4, SW1/4, SE1/4	N 185,977 E 1,234,720	6780'
WW13			N 180,272 E 1,236,438	6953.6'
WW22	39° 48' 42" 108° 13' 29"	T3S R97W Sec 1 SE1/4, SW1/4, SE1/4	N 185,977 E 1,234,720	6764.0'
WX02	39° 48' 56" 108° 12' 22"	T3S R96W Sec 6 SE1/4, NW1/4, SE1/4	N 187,234 E 1,240,000	6730'
WX04	39° 47' 11" 108° 12' 4"	T3S R96W Sec 17 SE1/4, NW1/4, SW1/4	N 176,542 E 1,241,074	7040'
WX10	39° 47' 46" 108° 13' 06"	T3S R97W Sec 13 NE1/4, NE1/4, NE1/4	N 180,257 E 1,236,291	6950'
WX12/WY12	39° 48' 52" 108° 14' 36"	T3S R97W Sec 2 NE1/4, SW1/4, SE1/4	N 187,171 E 1,229,497	6440'
WX17/WY17	39° 46' 58" 108° 10' 51"	T3S R96W Sec 16 SW1/4, SW1/4, SW1/4	N 175,034 E 1,246,668	7040'
WX19	39° 49' 31" 108° 11' 59"	T3S R96W Sec 5 NW1/4, NW1/4, NW1/4	N 190,760 E 1,241,891	6370'
WX20	39° 49' 33" 108° 12' 24"	T2S R96W Sec 31 SE1/4, SW1/4, SE1/4	N 191,011 E 1,239,937	6350'
WX21	39° 48' 57" 108° 13' 24"	T3S R97W Sec 13 SE1/4, SW1/4, SE1/4	N 175,348 E 1,234,782	6870'
WX32	39° 48' 26" 108° 13' 36"	T3S R97W Sec 12 NW1/4, SW1/4, NE1/4	N 184,342 E 1,234,091	6840'
WX33	39° 49' 0" 108° 13' 28"	T3S R97W Sec 1 SE1/4, NW1/4, SE1/4	N 187,800 E 1,234,845	6720'
WX38				6909.0'
WX41			N 191,000 E 1,236,500	6460.0'
WX44/WY45 /WY46	39° 48' 1" 108° 12' 44"	T3S R96W Sec 7 SW1/4, NE1/4, SW1/4	N 181,765 E 1,238,114	6910'
WX55/WY52 /WY54	39° 47' 48" 108° 12' 7"	T3S R96W Sec 7 SE1/4, SE1/4, SE1/4	N 180,320 E 1,240,948	6900'
WX63/WY61 WY62	39° 48' 13" 108° 12' 32"	T3S R96W Sec 7 NW1/4, NW1/4, SE1/4	N 182,897 E 1,239,057	6870'

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+ Multiple station codes at the same location indicates samples taken at different depths.

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE+	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WX64/WY64	39° 55' 16" 108° 13' 01"		OFF TRACT	7178.0'
WX65/WY65	39° 51' 36" 108° 21' 00"		OFF TRACT	6390.0'
WX67/WY67	39° 52' 55" 108° 15' 42"		OFF TRACT	6740.0'
WX69/WY69	39° 53' 10" 108° 05' 04"		OFF TRACT	7350.0'
WX71/WY71	39° 47' 47" 108° 21' 49"	T3S R98W Sec 11	OFF TRACT	6580.0'
WX72/WY72	39° 45' 40" 108° 19' 12"		OFF TRACT	6805.0'
WX73		T4S R95W Sec 32	N 675,219 E 1,273,792	8142.3'
WX74			OFF TRACT	
WX75		T5S R95W Sec 6	N 671,467.4 E 1,269,951.5	7583.2'
WX82			N 182,562 E 1,249,938	6909.0'
WX92/WY91	39° 47' 48" 108° 14' 20"	T3S R97W Sec 11 SE1/4, SE1/4, SE1/4	N 180,634 E 1,230,571	6870'
WY01	39° 48' 52" 108° 14' 3"	T3S R97W Sec 1 NE1/4, SW1/4, SW1/4	N 187,045 E 1,232,079	6780'
WY03	39° 48' 51" 108° 11' 29"	T3S R96W Sec 5 NW1/4, SW1/4, SE1/4	N 186,605 E 1,244,091	6740'
WY44			N 181,772 E 1,238,125	6909.0'
WY66	39° 50' 41" 108° 16' 04"	T2S R97W Sec 27	OFF TRACT	6286.0'
WY68	39° 45' 55" 108° 12' 31"		OFF TRACT	6840.0'
WY70	39° 45' 51" 108° 28' 01"	T3S R99W Sec 26	OFF TRACT	7070.0'
WY75	39° 45' 59" 108° 21' 49"	T3S R96W Sec 29	N 169,250 E 1,242,500	6820.0'
WY76	39° 45' 02" 108° 10' 04"	T3S R96W Sec 33	OFF TRACT	6865.0'
WY77			N 672,812 E 1,214,479	7777.8'

* Plane Coordinate Projection Tables, Colorado, Special Publication No. 276, U.S. Government Printing Office.

+ Multiple station codes at the same location indicates samples taken at different depths.

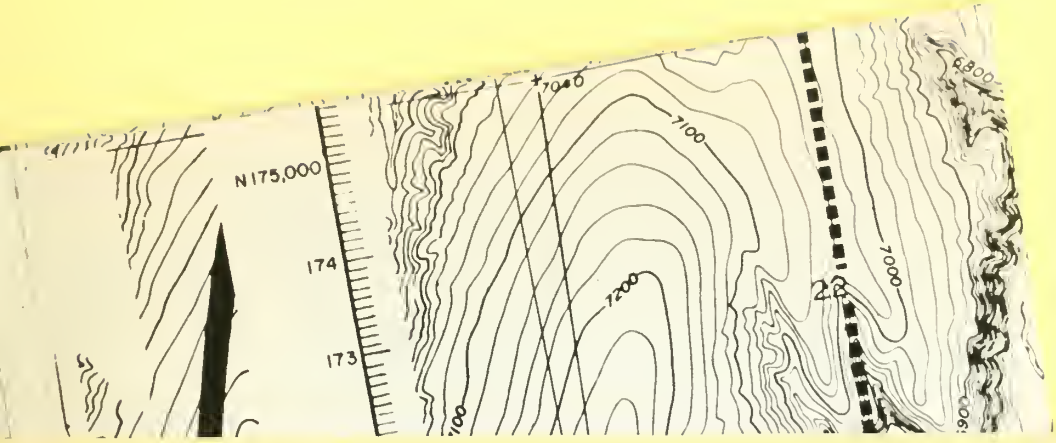
ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE+	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WY78	39° 43' 53" 108° 12' 58"	T4S R96W Sec 6	OFF TRACT	7145.0'
WY79	39° 51' 10" 108° 25' 35"	T2S R98W Sec 30	OFF TRACT	7020.0'
WY81	39° 48' 12" 108° 10' 24"	T3S R96W Sec 9 NE1/4, NE1/4, SW1/4	N 182,457 E 1,249,057	6540'
WZ01	39° 48' 56" 108° 13' 33"	T3S R96W Sec 1 SE1/4, NW1/4, SE1/4	N 187,422 E 1,234,405	6720'

---

* Plane Coordinate Projection Tables, Colorado, Special Publication No 276, U.S. Government Printing Office.

+ Multiple station codes at the same location indicates samples taken at different depths.


N175,000
174
173
7040
7100
7200
7000
6800
6900
22

ENVIRONMENTAL DATA COLLECTION STATION COORDINATES

STATION CODE+	LATITUDE & LONGITUDE	TOWNSHIP & RANGE	STATE COORDINATES*	ELEVATION
WY78	39° 43' 53" 108° 12' 58"	T4S R96W Sec 6	OFF TRACT	7145.0'
WY79	39° 51' 10" 108° 25' 35"	T2S R98W Sec 30	OFF TRACT	7020.0'
WY81	39° 48' 12" 108° 10' 24"	T3S R96W Sec 9 NE1/4, NE1/4, SW1/4	N 182,457 E 1,249,057	6540'
WZ01	39° 48' 56" 108° 13' 33"	T3S R96W Sec 1 SE1/4, NW1/4, SE1/4	N 187,422 E 1,234,405	6720'

---

* Plane Coordinate Projection Tables, Colorado, Special Publication No 276, U.S. Government Printing Office.

+ Multiple station codes at the same location indicates samples taken at different depths.

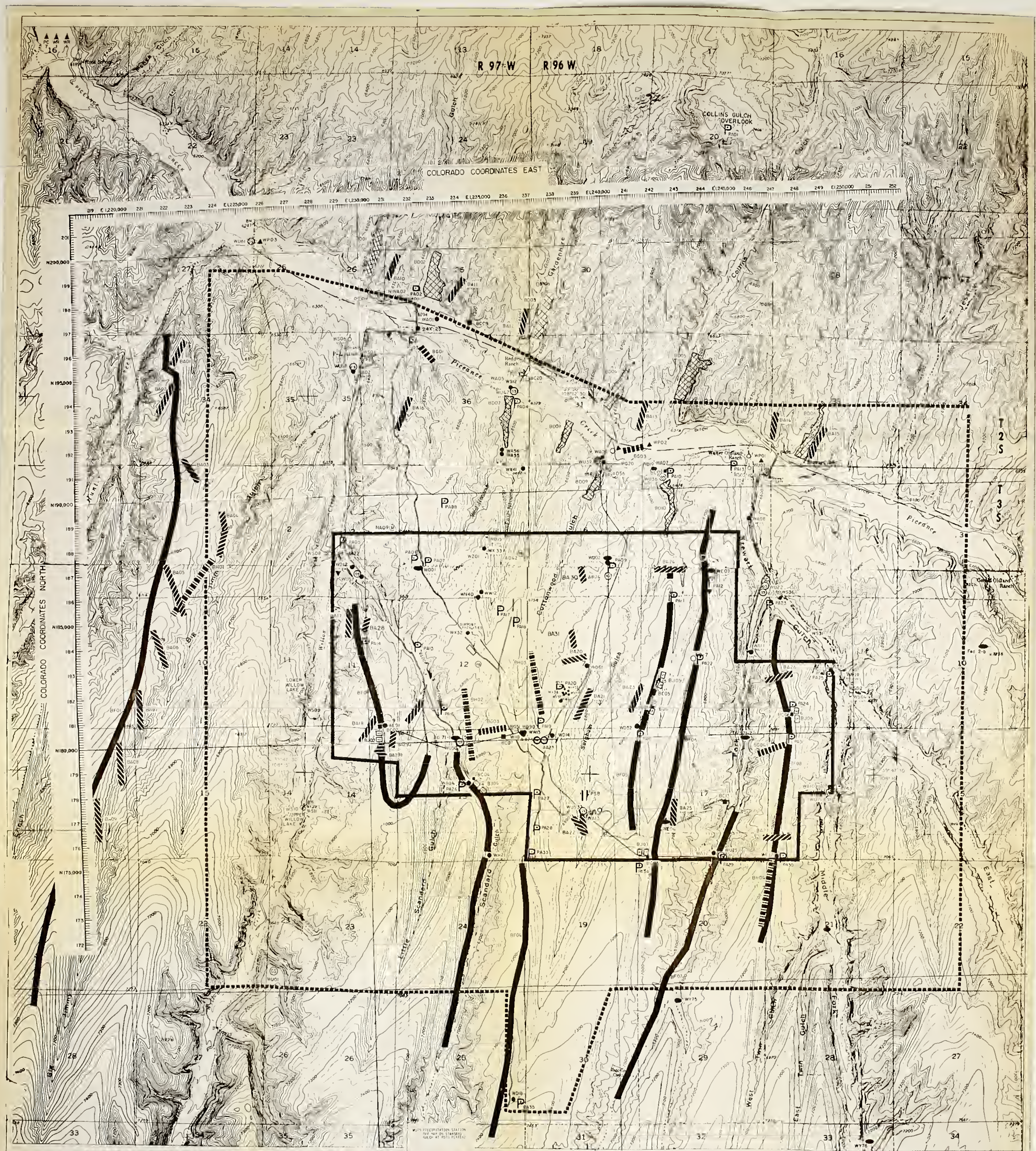


EXHIBIT C
FIGURE 2.2-3

DEVELOPMENT MONITORING ACTIVITIES

REVISION 1
MAR 8, 1979

REVISION 2
JUL 1, 1979

REVISION 3
MAR 14, 1980

REVISION 4
JUN 16, 1980

REVISION 5
JAN 7, 1981

5.0 Special Reports

This section contains the following reports:

Report

Shaft Mapping Report, Nick Stellavato, October 1980 to December, 1980

Samples taken at C-b Tract by U.S.G.S.

Water Quality

Lab No.	Description	Sample Date
089005	C.B. Pond Discharge	3/26/80
135007	Pond A Inlet	5/08/80
135009	Pond A Inlet	5/08/80
135008	C.B. Talus Pond	5/08/80
143140	1980 Leachate Study Plot	5/14/80
179050	1980 Leachate Study Plot	5/19/80
179051	1980 Leachate Study Plot	5/28/80
192075	1980 Leachate Study Plot	7/03/80
191123	Outlet of Pond B	7/05/79
135006	Outlet of Pond B	5/08/80
335039	WW13	11/28/79
089503	WW13	3/26/80

Field Measurements

Description	Sample Date
No Name Creek above Willow Creek	10/01/80
Piceance Creek	10/22/80
Piceance Creek and Piceance Creek Tributory	10/23/80

Flow

Description	Sample Date
Stewart Gulch	April-Sept.
Stewart Gulch	Oct.-March
No Name Creek	April-Sept.
No Name Creek	Oct.-March
Piceance Creek Above Hunter (WU61)	April-Sept.
Piceance Creek Above Hunter (WU61)	Oct.-March

OXY INTER-OFFICE MEMORANDUM

TO: Distribution

FROM: J. P. Reynolds
JPR 81:21

PROJECT: OOSI C.B.

SUBJECT: Shaft Mapping Report

DATE: January 16, 1981

Attached for your information is Nick Stellavato's shaft mapping report for the months of October, November, and December, 1980.

J.P. Reynolds

J. P. Reynolds
Acting Engineering Services Manager

JPR/mdb
Attachment

Distribution:

W. H. Love
W. F. McDermott
R. A. Loucks
W. Wells
R. Nelson
R. T. Ellington
R. E. Thomason (3)
L. Brake
W. L. Cowser
W. F. Fulghum
W. W. Shriver
N. M. Hutchins
J. P. Reynolds
B. J. Schaeffer
S. L. Stringer
R. G. Sykes
D. I. McClung
E. B. Baker
R. Kerr
G. Kraft
C. B. Central Records
Engineering Services File

MONTHLY REPORT FOR

OCTOBER, NOVEMBER, AND DECEMBER, 1980

During this period, the Production Shaft moved closer toward completion. The Intermediate Void Level, Lower Bench was completed. No major fractures were present at this level which is located in the lower Mahogany - B-Groove section (Figure 1). This stratigraphic interval is comprised of solution breccia and leached nahcolite vugs. Low grade to barren oil shale and gray marlstone comprise this zone.

Three probes were done at 5454', 5330', 5223', with no large water flows encountered to the bottom of the ore pocket (5147'). Flows less than 20 gpm were encountered with the majority below 10 gpm. Sinking progressed to the Lower Void Level and ore pocket excavation. At this level, drifting began but poor ground was encountered although no indication was seen from the core of 32X-12. The same stratigraphic interval was located in the well and the shaft with the beds showing good correlation with the exception of gray tuff beds and stringers present in the shaft which did not show up in the core. The most prominent geologic feature present in this zone and the most probable cause for the poor rock conditions was a N40E trending tight fold (Figure 2) whose axial plane is dipping to the NW at 55°. The combination of this fold and the pinching tuff beds cause the more competent oil shale beds to have undulating contacts with the units above and below them. Figure 2 is a cross-section measured from North to South across this excavation. As can be seen, the gray-fractured tuff beds thin and pinch out. Also the two zones are shown where the rock fell near the brow concrete. Attached are pictures taken from this area showing the folding, South fall zone, and North fall zone. Due to the poor rock at this area, coring was attempted with one up hole and a down corehole on the southeast side of the shaft. Figure 6 shows the core log of the up hole and illustrates where the first competent seam is located. Figure 7 is a litholog of the Lower Void Level excavation to the sill. During coring of the downhole, core recovery was poor. As sinking progressed, however, the rock appeared much better than the coring results exhibited. Upon further mapping below the concrete abutments, the folding mentioned previously is excellently exposed at the north and south faces. Figure 5 is a plan view of the proposed development and the fold trend plotted. Figures 3 and 4 illustrate the migration of the fold axis due to the NW dip of 55° as sinking progressed in the ore pocket. Figure 3 shows the fold at 5227' elevation and Figure 4 shows the location of the fold at the 5204' elevation. At the 5227' elevation, the folding is illustrated in the picture included in this report. In the interval between 5227' through 5204' the folding is very sharp (chevron type) but the bottom 4' of open ground is again similar to the picture, rounded crests. The lateral extent of the fold is not known at this time but evidence of folding can be seen in the East heading off the North drift. As development takes place off the Service Shaft at the Lower Void Level, it will be possible to see if this fold extends that far.

The Service Shaft completed excavation of the Intermediate Void Level. Again, rock quality was similar to the Production Shaft Lower Void Level. Typical gray barren marls and low grade leached oil shale of the lower Mahogany - B-Groove. The dike mapped in the Production Shaft was still present in the North-South connecting drift but is only 3" to 5" thick in the back and difficult to trace down the ribs. Sinking has begun again and at present the shaft is 50' above the Lower Void Level. Probing was completed with little or no water encountered.

At the V/E Shaft, Grout Cover #10 was completed. Figure 8 is a detailed breakdown of water flows encountered. During drilling, no large volumes of water were encountered but during sinking, a blowout of gas and water was encountered at the A-Groove. Details of this were written in a report earlier.

Sinking progressed to the Upper Void Level station. Development is about finished and to date no water has been encountered. Figure 9 is a drawing of the proposed Upper Void Level station layout. As can be seen from the drawing, 33X-1 corehole would be either in the station or near the excavation. Due to this, the well was cemented for safety of workers in the station. Attached is the current configuration of the well. During excavation of this level, the Mahogany Marker was exposed and hence an exact elevation could be obtained. The following table shows shaft, elevation, difference, distance between shafts, and dip of beds:

	ELEVATION	DIFFERENCE	DISTANCE	DIP
Production Shaft	5502'			
Service Shaft	5497'	5'	300'	1.0°
V/E Shaft	5402'	89'	3784'	1.4°

From these measurements, the dip of the marker is quite gentle, only 1° between the Service and Production Shafts, and 1.4° between the Service and V/E Shafts. The elevation of the marker at the V/E corresponds with the well logs of 33X-1 corehole. Another grout cover (#11) will be undertaken approximately 25' below the sill of the station. Water flows are expected to be less than encountered before with bleed-off in a short amount of time.

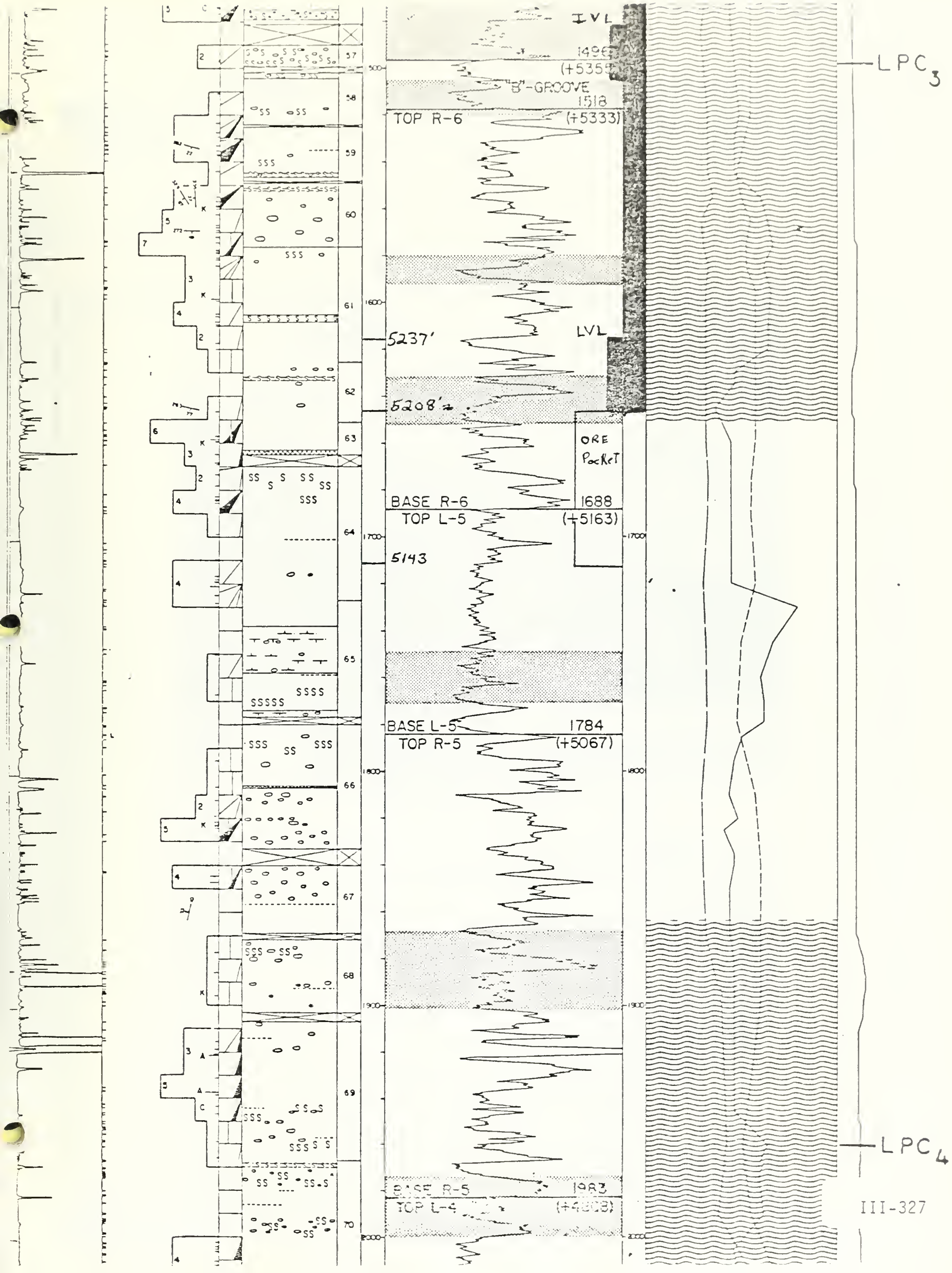
Attached to the report is Figure 10. This is an update of the daily water production curves and well drawdown curves. Also plotted is a cumulative water production curve to date. As can be seen, the volume of water being produced is declining with total inflow now around 1200 gpm, less than the previous predictions of 1800 to 2500 gpm.

Nick

Nick Stellavato
Senior Geologist/Hydrologist

NS/mdb

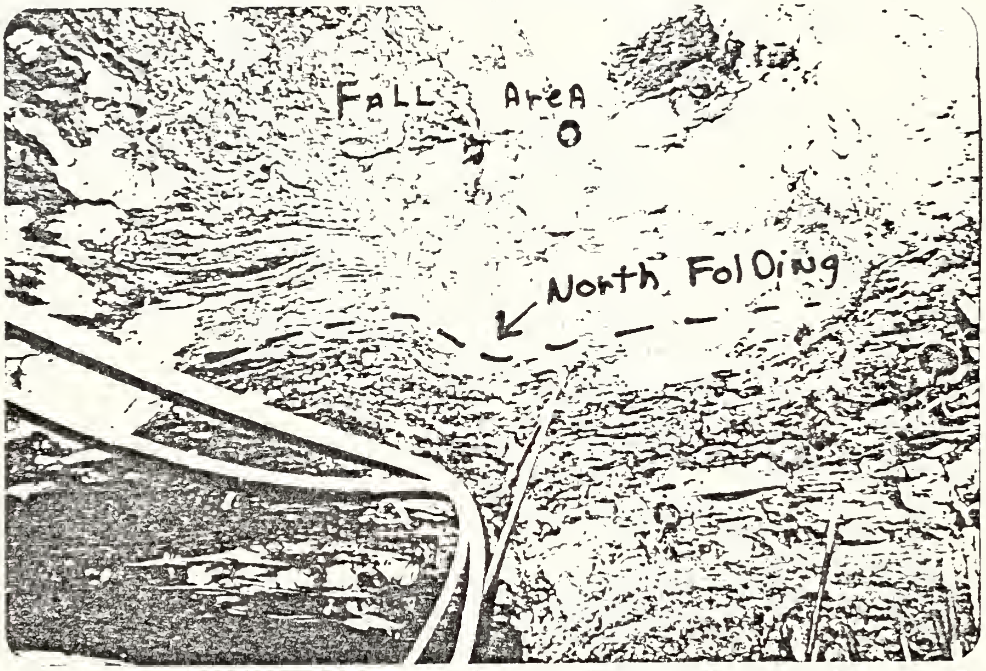
Attachments


IVL
1496
(+5355)
"B"-GROOVE
1518
TOP R-6
(+5333)
5237'
LVL
5208'±
ORE
PocKeT
BASE R-6
1688
TOP L-5
(+5163)
5143
BASE L-5
1784
TOP R-5
(+5067)
BASE R-5
1983
TOP L-4
(+4868)
LPC3
LPC4
1500
1600
1700
1800
1900
2000
57
58
59
60
61
62
63
64
65
66
67
68
69
70

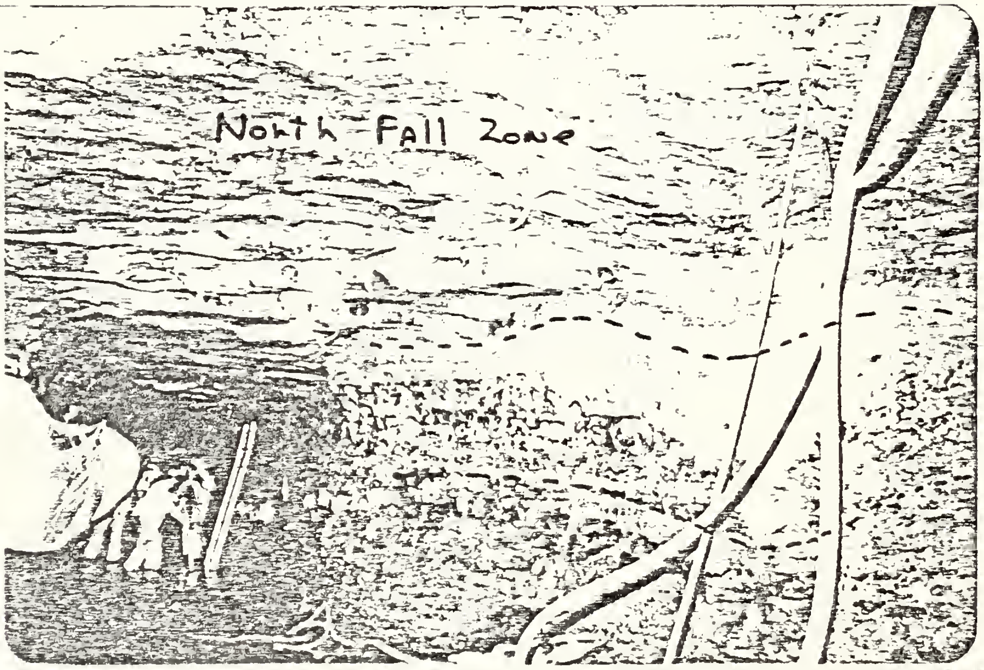
FROM: ______ TO: ______ DATE: ______ SHEET ______ OF ______

SUBJECT: ______ SECTION: ______

C. B. ENGINEERING SERVICES
CALCULATION SHEET



North Drift showing folding AND rock fall zone

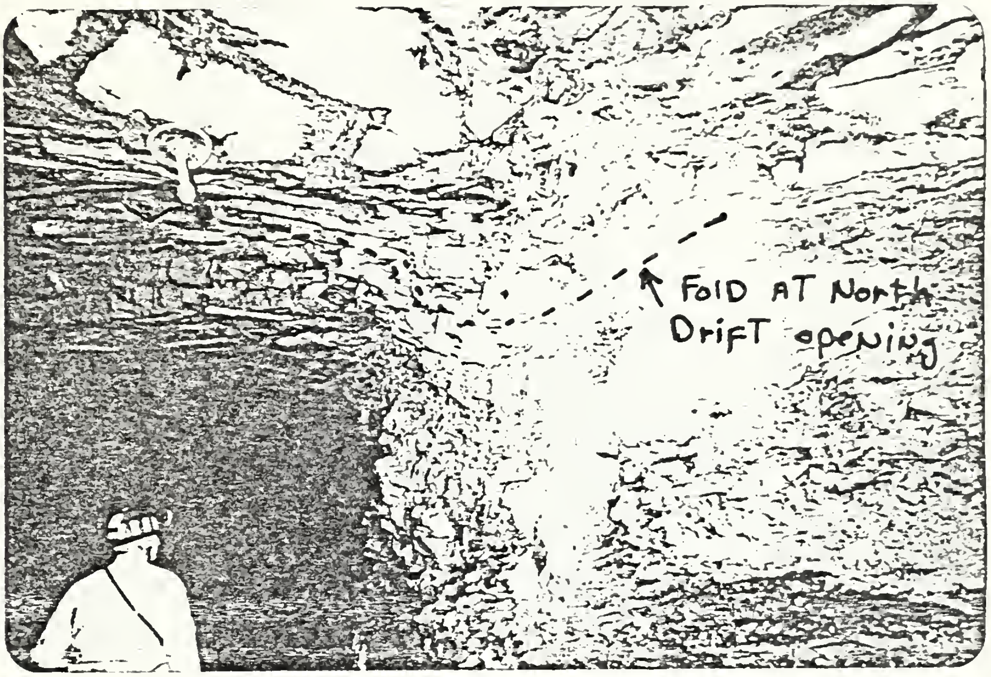


III-328

FROM: ______ TO: ______ DATE: ______ SHEET ______ OF ______

SUBJECT: ______ SECTION: ______

C. B. ENGINEERING SERVICES
CALCULATION SHEET

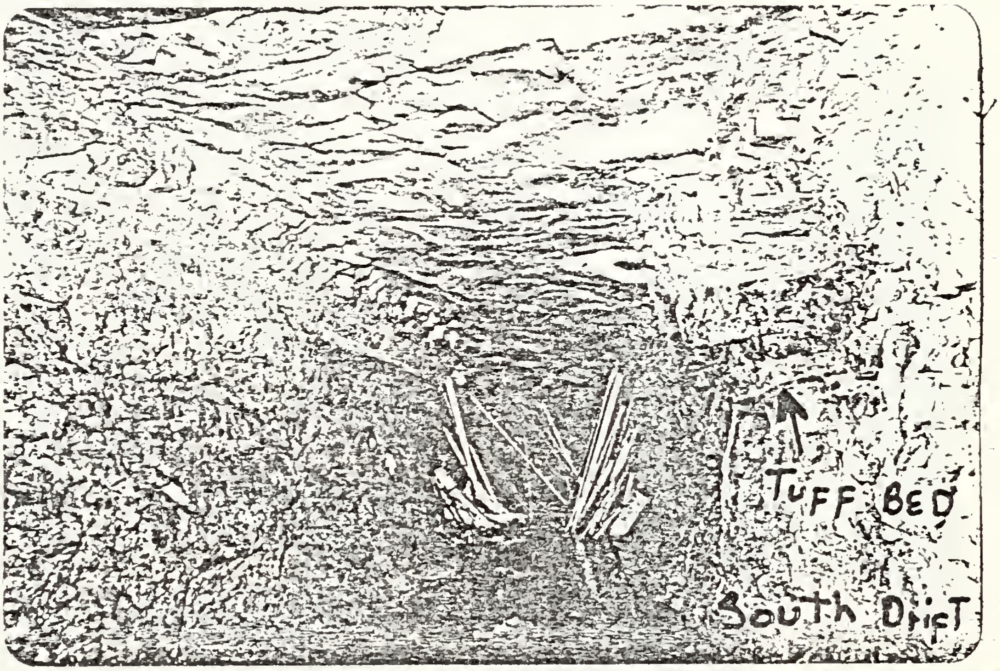


MAjor FolD At the North DrifT opening

FROM: ______ TO: ______ DATE: ______ SHEET ______ OF ______

SUBJECT: ______ SECTION: ______

C. B. ENGINEERING SERVICES
CALCULATION SHEET



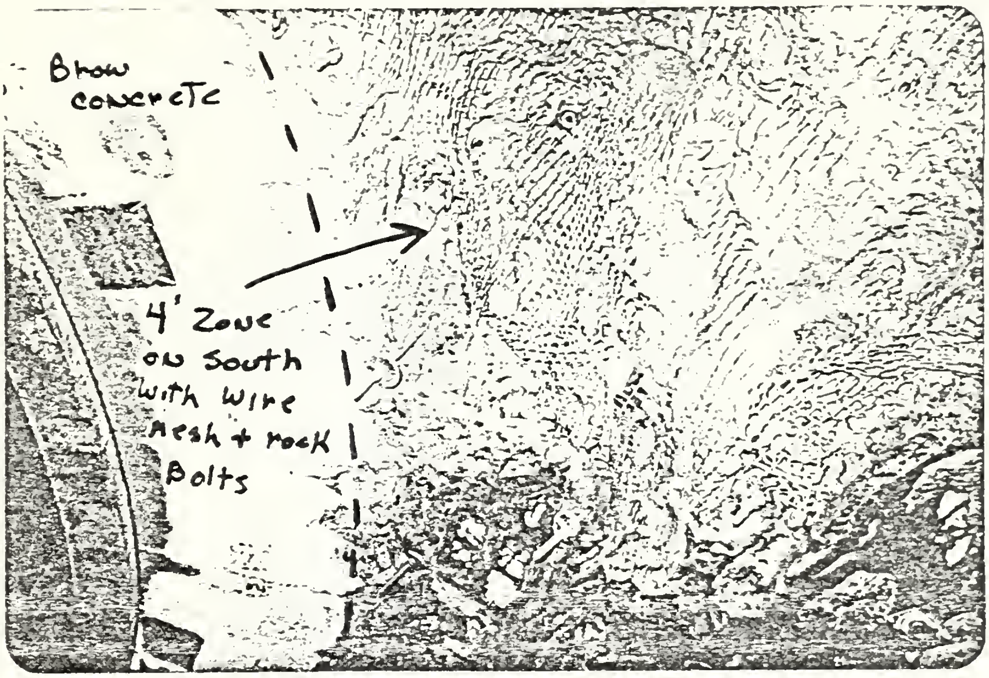
South Drift showing Gray Tuff Bed
interbedded with Black oil Shale Bed

Cathedral
Bluffs Shale Oil Company
P.O. Box 2687, Grand Junction, Colorado 81502

FROM: ______ TO: ______ DATE: ______ SHEET ____ OF ____

SUBJECT: ______ SECTION: ______

C. B. ENGINEERING SERVICES
CALCULATION SHEET



Area Behind Brow on the South that Fell out Due to poor Rock.

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Samples taken at C-b Tract by U.S.G.S.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY, DENVER, COLORADO

WATER QUALITY ANALYSIS
LAB-ID # 89005 RECORD-# 78556

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID: 089005 LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800326 END-- TIME--1530
COUNTY CODE: PROJECT IDENTIFICATION: 460806500
SOURCE: SURFACE WATER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#: DESCRIPTION: CB Pond Discharge
CB POND DISCHARGE. COL BY TOBIN. GH 0.98

PRELIMINARY REPORT SUBJECT TO REVISION

ALK,TOT(CACO3)	MG/L		620	MERCURY SUSPENDED	UG/L	0.0
ALUMINUM DISSOLVED	UG/L		30	MERCURY TOTAL	UG/L	0.0
ALUMINUM SUSPENDED	UG/L		3000	MOLYBDENUM DISSOLVED	UG/L	15
ALUMINUM TOTAL	UG/L		3000	MOLYBDENUM SUSPEND.	UG/L	5
ANALYZING AGENCY			80020	MOLYBDENUM TOTAL	UG/L	20
ARSENIC DISSOLVED	UG/L		12	NICKEL DISSOLVED	UG/L	0
ARSENIC SUSPENDED	UG/L		3	NICKEL SUSPENDED	UG/L	6
ARSENIC TOTAL	UG/L		15	NICKEL TOTAL	UG/L	6
BARIUM DISSOLVED	UG/L		200	NITR. NH4 AS NH4 DIS	MG/L	3.9
BARIUM SUSPENDED	UG/L		200	NITROGEN DIS ORG ASN	MG/L	0.20
BARIUM TOTAL	UG/L		400	NITROGEN DISS AS N	MG/L	8.3
BERYLLIUM DISSOLVED	UG/L	<	1	NITROGEN DISS KJD	MG/L	3.2
BERYLLIUM SUSPENDED	UG/L		0	NITROGEN NH4 ASN DIS	MG/L	3.0
BERYLLIUM TOTAL	UG/L		0	NITROGEN NH4 ASN TOT	MG/L	3.0
BORON DISSOLVED	UG/L		610	NITROGEN SUSP KJD	MG/L	0.20
BROMIDE	MG/L		0.1	NITROGEN TOT AS N	MG/L	8.2
CADMIUM DISSOLVED	UG/L	<	1	NITROGEN TOT AS NO3	MG/L	36
CADMIUM SUSPENDED	UG/L		0	NITROGEN TOT ORG N	MG/L	0.40
CADMIUM TOTAL	UG/L		0	NITROGEN TOTKJD AS N	MG/L	3.4
CALCIUM DISS	MG/L		28	NITROGEN, NH4, TOTAL	MG/L	3.6
CARBON DIS ORGANIC	MG/L		8.3	NO2 + NO3 AS N TOT	MG/L	4.8
CARBON TOT ORGANIC	MG/L		13	NO2+NO3 AS N DISS	MG/L	5.1
CHLORIDE DISS	MG/L		6.7	PH FIELD		7.1
CHROMIUM DISSOLVED	UG/L		0	PH LAB		7.7
CHROMIUM SUSPENDED	UG/L		0	PHENOLS	UG/L	1
CHROMIUM TOTAL	UG/L		0	PHOSPHORUS TOT AS P	MG/L	0.22
COBALT DISSOLVED	UG/L	<	3	PHOSPHORUS TOT PO4	MG/L	0.67
COBALT SUSPENDED	UG/L		0	POTASSIUM DISS	MG/L	4.1
COBALT TOTAL	UG/L		2	POTASSIUM 40,D.PCI/L		3.1
COD	MG/L		9	RESIDUE DIS CALC SUM	MG/L	1230
COPPER DISSOLVED	UG/L		2	RESIDUE DIS TON/AFT		1.67
COPPER SUSPENDED	UG/L		6	RESIDUE TOTNONFIL105	MG/L	184
COPPER TOTAL	UG/L		8	SAR		16
FLUORIDE DISS	MG/L		11	SELENIUM DISSOLVED	UG/L	0

CONTINUED ON NEXT PAGE

```
                      WATER QUALITY ANALYSIS CONTINUED
                      LAB ID #  89005 RECORD #  78556

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:           089005    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800326  END--         TIME--1530

HARDNESS NONCARB      MG/L        0      SELENIUM SUSPENDED   UG/L       0
HARDNESS TOTAL        MG/L      120      SELENIUM TOTAL       UG/L       0
IRON DISSOLVED        UG/L       50      SILICA DISSOLVED     MG/L      42
IRON SUSPENDED        UG/L     2300      SILVER DISSOLVED     UG/L       0
IRON TOTAL            UG/L     2300      SILVER SUSPENDED     UG/L       1
LEAD DISSOLVED        UG/L        0      SILVER TOTAL         UG/L       1
LEAD SUSPENDED        UG/L       11      SODIUM DISS          MG/L     400
LEAD TOTAL            UG/L       11      SODIUM PERCENT                 87
LITHIUM DISSOLVED     UG/L       50      SP. CONDUCTANCE FLD          1830
LITHIUM SUSPENDED     UG/L       10      SP. CONDUCTANCE LAB          1823
LITHIUM TOTAL         UG/L       60      STRONTIUM DISSOLVED  UG/L    1200
MAGNESIUM DISS        MG/L       12      SULFATE DISS         MG/L     330
MANGANESE DISSOLVED   UG/L       40      WATER TEMP (DEG C)             15.0
MANGANESE SUSPENDED   UG/L       60      ZINC DISSOLVED       UG/L     100
MANGANESE TOTAL       UG/L      100      ZINC SUSPENDED       UG/L      90
MERCURY DISSOLVED     UG/L        0.0    ZINC TOTAL           UG/L     190
                          PRELIMINARY REPORT SUBJECT TO REVISION
                CATIONS                                    ANIONS

                      (MG/L)      (MEQ/L)                       (MG/L)      (MEQ/L)
CALCIUM DISS           28          1.397  CHLORIDE DISS          6.7         0.189
MAGNESIUM DISS         12          0.987  FLUORIDE DISS         11           0.579
POTASSIUM DISS          4.1        0.105  SULFATE DISS         330           6.871
SODIUM DISS           400         17.400  ALK,TOT(CACO3)       620          12.388
                                          NO2+NO3 AS N D         5.1         0.364
                                ---------                                ---------
                      TOTAL       19.889                      TOTAL       20.390

                         PERCENT DIFFERENCE =    -1.24
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UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY DENVER, COLORADO

WATER QUALITY ANALYSIS
LAB-ID # 135007 RECORD-# 89887

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID: 135007 LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800508 END-- TIME--1130 ✓
STATE CODE: 08 COUNTY CODE: PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2 SOURCE: OTHER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#: DESCRIPTION: Pond A Inlet
CB MINE EFF COL BY BT coll pt. between mine and ponds

PRELIMINARY REPORT SUBJECT TO REVISION

ALK,TOT(CACO3)	MG/L	590
ALUMINUM TOTAL	UG/L	910
ANALYZING AGENCY		80020
ARSENIC DISSOLVED	UG/L	69
ARSENIC SUSPENDED	UG/L	81
ARSENIC TOTAL	UG/L	150
BARIUM TOTAL	UG/L	2500
BERYLLIUM TOTAL	UG/L	10
BORON DISSOLVED	UG/L	480
CADMIUM TOTAL	UG/L	2
CALCIUM DISS	MG/L	4.1
CARBON DIS ORGANIC	MG/L	22
CHLORIDE DISS	MG/L	5.3
CHROMIUM TOTAL	UG/L	140
COBALT TOTAL	UG/L	28
COPPER TOTAL	UG/L	150
FLUORIDE DISS	MG/L	16
HARDNESS NONCARB	MG/L	0
HARDNESS TOTAL	MG/L	25
IRON DISSOLVED	UG/L	130
IRON SUSPENDED	UG/L	90000
IRON TOTAL	UG/L	90000
LEAD TOTAL	UG/L	140
LITHIUM TOTAL	UG/L	160
MAGNESIUM DISS	MG/L	3.5
MANGANESE DISSOLVED	UG/L	2
MANGANESE SUSPENDED	UG/L	1700
MANGANESE TOTAL	UG/L	1700
MERCURY TOTAL	UG/L	0.3
MOLYBDENUM TOTAL	UG/L	86
NICKEL TOTAL	UG/L	65
NITR DIS NO2+NO3 -N	MG/L	3.4
NITR DISS NH4 AS N	MG/L	1.8
NITR DISS NH4+ORG-N	MG/L	2.6
NITR DISS ORG AS N	MG/L	0.60
NITR DISSOLVED AS N	MG/L	6.0
NITR SUS NH4+ORG -N	MG/L	6.6
NITR TOT NO2+NO3 -N	MG/L	3.4
NITR TOT NH4 AS N	MG/L	2.0
NITR TOT NH4+ORG -N	MG/L	9.2
NITR TOTAL ORG AS N	MG/L	7.2
NITR TOTAL. AS N	MG/L	13
NITR. DIS NH4 AS NH4	MG/L	2.3
NITR. TOT NH4 AS NH4	MG/L	2.4
NITR. TOTAL AS NO3	MG/L	56
PH FIELD		9.5
PH LAB		9.7
PHENOLS	UG/L	0
PHOS TOT (TOT) AS P	MG/L	6.3
PHOS TOT. (TOT) -PO4	MG/L	19
POTASSIUM DISS	MG/L	14
POTASSIUM 40,D.PCI/L		10
RESIDUE DIS CALC SUM	MG/L	867
RESIDUE DIS TON/AFT		1.18
RESIDUE TOTNONFIL105	MG/L	4540
SAMPLE SOURCE CODE		40
SAR		29
SELENIUM TOTAL	UG/L	8
SILICA DISSOLVED	MG/L	37
SILVER TOTAL	UG/L	1
SODIUM DISS	MG/L	330
SODIUM PERCENT		94
SP. CONDUCTANCE FLD		1400
SP. CONDUCTANCE LAB		1456
STRONTIUM DISSOLVED	UG/L	270
SULFATE DISS	MG/L	86
ZINC TOTAL	UG/L	810

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                    WATER QUALITY ANALYSIS CONTINUED
                    LAB ID # 135007 RECORD # 89887

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:           135007    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800508  END--         TIME--1130
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PRELIMINARY REPORT SUBJECT TO REVISION

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                CATIONS                                      ANIONS

                  (MG/L)         (MEQ/L)                     (MG/L)         (MEQ/L)
CALCIUM DISS        4.1           0.205 CHLORIDE DISS          5.3           0.150
MAGNESIUM DISS      3.5           0.288 FLUORIDE DISS         16             0.842
POTASSIUM DISS     14             0.358 SULFATE DISS          86             1.791
SODIUM DISS       330            14.355 ALK,TOT(CACO3)       590            11.788
                                          NITR DIS NO2+N        3.4           0.243
                                 ------                                     ------
                      TOTAL      15.205                      TOTAL          14.813

                         PERCENT DIFFERENCE =    1.31
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                 UNITED STATES DEPARTMENT OF THE INTERIOR
                             GEOLOGICAL SURVEY
                    CENTRAL LABORATORY DENVER, COLORADO

                          WATER QUALITY ANALYSIS
                     LAB-ID # 135009 RECORD-#  89893

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:             135009    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800508  END--          TIME--1130
STATE CODE: 08 COUNTY CODE:       PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2  SOURCE: OTHER                 GEOLOGIC UNIT:
COMMENTS:      UNIQUE-#:                    DESCRIPTION:  Pond A Inlet
  FIELD VALUE USED FOR CARBONATE.  D   Cb mine eff.                    FIELD

              PRELIMINARY REPORT SUBJECT TO REVISION

ANALYZING AGENCY              80020     GROSS ALPHA DIS.U-NA UG/L <    12
G.ALPHA DIS.U-N,PC/L      <      8.2    GROSS ALPHA SUS.U-NA UG/L     190
G.ALPHA SUS.U-N,PC/L           130      PH FIELD                        9.5
GROS-B,D,CS137 PCI/L      <      7.3    RA-226 BY RN    PCI/L           0.03
GROS-B,D,SR-90-PCI/L      <      7.4    SAMPLE SOURCE CODE             40
GROS-B,S,CS137 PCI/L           120      SP. CONDUCTANCE FLD          1400
GROS-B,S,SR-90 PCI/L           120      U,DIS.EXT.FLUOR-UG/L UG/L       2.2
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5

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                 UNITED STATES DEPARTMENT OF THE INTERIOR
                            GEOLOGICAL SURVEY
                  CENTRAL LABORATORY DENVER, COLORADO

                         WATER QUALITY ANALYSIS
                     LAB-ID # 135008 RECORD-#  89590

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:            135008    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800508  END--          TIME--1200
STATE CODE: 08 COUNTY CODE:      PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2  SOURCE: SURFACE WATER       GEOLOGIC UNIT:
COMMENTS:      UNIQUE-#:                  DESCRIPTION: CB Talus Pond
  CB TALUS POND COLL BY BT
  RERUNS: CA=15, NA=110, CL=9.1, SO4=110


ALK,TOT(CACO3)         MG/L       58     NITR DISS ORG    AS N MG/L       1.2
ALUMINUM TOTAL         UG/L      950     NITR DISSOLVED   AS N MG/L       8.6
ANALYZING AGENCY               80020     NITR SUS NH4+ORG   -N MG/L       0.00
ARSENIC DISSOLVED      UG/L        6     NITR TOT  NO2+NO3 -N MG/L       7.2
ARSENIC SUSPENDED      UG/L        2     NITR TOT NH4     AS N MG/L       0.16
ARSENIC TOTAL          UG/L        8     NITR TOT NH4+ORG   -N MG/L       1.2
BARIUM TOTAL           UG/L      200     NITR TOTAL  ORG AS N MG/L       1.0
BERYLLIUM TOTAL        UG/L        0     NITR TOTAL.      AS N MG/L       8.4
BORON DISSOLVED        UG/L      100     NITR. DIS NH4 AS NH4 MG/L       0.09
CADMIUM TOTAL          UG/L        0     NITR. TOT NH4 AS NH4 MG/L       0.19
CALCIUM DISS           MG/L       15     NITR. TOTAL   AS NO3 MG/L      37
CARBON DIS ORGANIC     MG/L       11     PH FIELD                        9.0
CHLORIDE DISS          MG/L        9.2   PH LAB                          9.3
CHROMIUM TOTAL         UG/L       10     PHENOLS                UG/L     0
COBALT TOTAL           UG/L        1     PHOS TOT  (TOT) AS P MG/L       0.11
COPPER TOTAL           UG/L        3     PHOS TOT. (TOT) -PO4 MG/L       0.34
FLUORIDE DISS          MG/L        1.0   POTASSIUM DISS         MG/L     2.8
HARDNESS NONCARB       MG/L        0     POTASSIUM 40,D.PCI/L            2.1
HARDNESS TOTAL         MG/L       46     RESIDUE DIS CALC SUM MG/L     342
IRON DISSOLVED         UG/L       50     RESIDUE DIS TON/AFT             0.47
IRON SUSPENDED         UG/L     1800     RESIDUE TOTNONFIL105 MG/L      35
IRON TOTAL             UG/L     1800     SAMPLE SOURCE CODE             40
LEAD TOTAL             UG/L        5     SAR                             8.1
LITHIUM TOTAL          UG/L       20     SELENIUM TOTAL         UG/L     4
MAGNESIUM DISS         MG/L        1.9   SILICA DISSOLVED       MG/L    23
MANGANESE DISSOLVED    UG/L <      1     SILVER TOTAL           UG/L     0
MANGANESE TOTAL        UG/L       30     SODIUM DISS            MG/L    95
MERCURY TOTAL          UG/L        0.0   SODIUM PERCENT                 81
MOLYBDENUM TOTAL       UG/L       82     SP. CONDUCTANCE FLD           470
NICKEL TOTAL           UG/L        8     SP. CONDUCTANCE LAB           491
NITR DIS NO2+NO3   -N  MG/L        7.3   STRONTIUM DISSOLVED    UG/L   590
NITR DISS  NH4   AS N  MG/L        0.07  SULFATE DISS           MG/L   120
NITR DISS  NH4+ORG-N   MG/L        1.3   ZINC TOTAL             UG/L    30
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PRELIMINARY REPORT SUBJECT TO REVISION

CONTINUED ON NEXT PAGE

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                         WATER QUALITY ANALYSIS CONTINUED
                         LAB ID # 135008 RECORD # 89890

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:           135008    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800508  END--         TIME--1200

                                            PRELIMINARY REPORT SUBJECT TO REVISION
                  CATIONS                                    ANIONS

                 (MG/L)        (MEQ/L)                       (MG/L)         (MEQ/L)
CALCIUM DISS      15             0.749 CHLORIDE DISS          9.2             0.260
MAGNESIUM DISS     1.9           0.156 FLUORIDE DISS          1.0             0.053
POTASSIUM DISS     2.8           0.072 SULFATE DISS         120               2.498
SODIUM DISS       95             4.133 ALK.TOT(CACO3)        68               1.359
                                       NITR DIS NO2+N         7.3             0.521
                            ---------                                     ---------
                     TOTAL      5.109                       TOTAL            4.690

                             PERCENT DIFFERENCE =     4.27
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53.

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                      UNITED STATES DEPARTMENT OF THE INTERIOR
                                 GEOLOGICAL SURVEY
                        CENTRAL LABORATORY DENVER, COLORADO

                              WATER QUALITY ANALYSIS
                        LAB-ID # 143140 RECORD-#   92474

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:             143140     LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800514  END--          TIME--1200
STATE CODE: 08 COUNTY CODE:       PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2  SOURCE: OTHER                    GEOLOGIC UNIT:
COMMENTS:       UNIQUE-#:                      DESCRIPTION:  1980 Leachate Study Plot
  CB TALUS LEACHATE  WATER CLEAR  COL BY CB PERSONNEL
  RERUNS: C DISS ORG.=44, C TOT. ORG.=34

ALK,TOT(CACO3)          MG/L        110       MERCURY TOTAL             UG/L          0.1
ALUMINUM TOTAL          UG/L        390       MOLYBDENUM TOTAL          UG/L          2
ANALYZING AGENCY                  80020       NICKEL TOTAL              UG/L         31
ARSENIC DISSOLVED       UG/L          7       NITR DIS NO2+NO3   -N     MG/L         50
ARSENIC SUSPENDED       UG/L          1       NITR DISS  NH4   AS N     MG/L          0.49
ARSENIC TOTAL           UG/L          8       NITR DISS  NH4+ORG-N      MG/L          3.2
BARIUM TOTAL            UG/L        100       NITR DISS ORG    AS N     MG/L          2.7
BERYLLIUM TOTAL         UG/L         10       NITR DISSOLVED   AS N     MG/L         53
BORON DISSOLVED         UG/L        560       NITR. DIS NH4 AS NH4      MG/L          0.63
CADMIUM TOTAL           UG/L          0       PH FIELD                                7.8
CALCIUM DISS            MG/L        260       PH LAB                                  7.8
CARBON DIS ORGANIC      MG/L         36       PHENOLS                   UG/L         10
CARBON TOT ORGANIC      MG/L         26       PHOS TOT   (TOT) AS P     MG/L          0.25
CHLORIDE DISS           MG/L         13       PHOS TOT. (TOT) -PO4      MG/L          0.77
CHROMIUM TOTAL          UG/L         10       POTASSIUM DISS            MG/L          3.3
COBALT TOTAL            UG/L          8       POTASSIUM 40,D.PCI/L                    2.5
COPPER TOTAL            UG/L          6       RESIDUE DIS CALC SUM      MG/L       3440
CYANIDE                 MG/L          0.15    RESIDUE DIS TON/AFT                     4.68
FLUORIDE DISS           MG/L          6.4     SAMPLE SOURCE CODE                     40
HARDNESS NONCARB        MG/L        940       SAR                                     8.7
HARDNESS TOTAL          MG/L       1100       SELENIUM TOTAL            UG/L         19
IRON DISSOLVED          UG/L         30       SILICA DISSOLVED          MG/L         17
IRON SUSPENDED          UG/L        270       SILVER TOTAL              UG/L          0
IRON TOTAL              UG/L        300       SODIUM DISS               MG/L        650
LEAD TOTAL              UG/L          2       SODIUM PERCENT                         57
LITHIUM TOTAL           UG/L         10       SP. CONDUCTANCE FLD                  4520
MAGNESIUM DISS          MG/L         97       SP. CONDUCTANCE LAB                  4598
MANGANESE DISSOLVED     UG/L         90       STRONTIUM DISSOLVED       UG/L       4600
MANGANESE SUSPENDED     UG/L          0       SULFATE DISS              MG/L       2100
MANGANESE TOTAL         UG/L         90       TURBIDITY (NTU) EPA                     3.0
                                              ZINC TOTAL                UG/L        440

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PRELIMINARY REPORT SUBJECT TO REVISION

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                      WATER QUALITY ANALYSIS CONTINUED
                      LAB ID # 143140 RECORD # 92474

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:           143140    LAT.LONG.SEQ.: * NONE GIVEN *
 ATE OF COLLECTION: BEGIN--800514  END--        TIME--1200

                CATIONS                                          ANIONS

                  (MG/L)        (MEQ/L)                       (MG/L)         (MEQ/L)
CALCIUM DISS      260            12.974 CHLORIDE DISS          13             0.367
MAGNESIUM DISS     97             7.979 FLUORIDE DISS           6.4           0.337
POTASSIUM DISS      3.3           0.084 SULFATE DISS         2100            43.722
SODIUM DISS       650            28.275 ALK,TOT(CACO3)        110             2.198
                                        NITR DIS NO2+N         50             3.570
                               ________                                    ________
                       TOTAL     49.313                         TOTAL        50.193

                         PERCENT DIFFERENCE =    -0.88
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PRELIMINARY REPORT SUBJECT TO REVISION

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                UNITED STATES DEPARTMENT OF THE INTERIOR
                          GEOLOGICAL SURVEY
                 CENTRAL LABORATORY DENVER, COLORADO

                        WATER QUALITY ANALYSIS
                   LAB-ID # 179050 RECORD-# 104449

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:            179050    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800519  END--          TIME--1205
STATE CODE: 08 COUNTY CODE:     PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2  SOURCE: OTHER                GEOLOGIC UNIT:
COMMENTS:       UNIQUE-#:                  DESCRIPTION:  1980 Leachate Study Plot
  C-B TALUS LEACHATE
                                   PRELIMINARY REPORT SUBJECT TO REVISION

ALK,TOT(CACO3)          MG/L       140      NITR DISS  NH4+ORG-N MG/L          8.2
ANALYZING AGENCY                 80020      NITR DISS ORG   AS N MG/L          7.5
ARSENIC DISSOLVED       UG/L         8      NITR DISSOLVED  AS N MG/L        70
BARIUM, DISSOLVED       UG/L        30      NITR. DIS NH4 AS NH4 MG/L          0.85
BERYLLIUM, DISSOLVED UG/L <          1      PH FIELD                           8.0
BORON DISSOLVED         UG/L       560      PH LAB                             7.9
CADMIUM, DISSOLVED      UG/L         1      PHENOLS                   UG/L     5
CALCIUM, DISSOLVED      MG/L       330      PHOS TOT   (TOT) AS P MG/L         0.40
CARBON DIS ORGANIC      MG/L        31      PHOS TOT. (TOT) -PO4 MG/L          1.2
CHLORIDE DISS           MG/L        10      POTASSIUM DISS            MG/L     4.0
COBALT, DISSOLVED       UG/L <       3      POTASSIUM 40.D.PCI/L               3.0
COPPER, DISSOLVED       UG/L <      10      RESIDUE DIS CALC SUM MG/L      3980
CYANIDE                 MG/L         0.15   RESIDUE DIS TON/AFT                5.41
FLUORIDE DISS           MG/L         2.9    SAMPLE SOURCE CODE               40
HARDNESS NONCARB        MG/L      1100      SAR                                9.8
HARDNESS TOTAL          MG/L      1300      SILICA, DISSOLVED         MG/L     6.3
IRON, DISSOLVED         UG/L        19      SODIUM PERCENT                   56
LEAD, DISSOLVED         UG/L        35      SODIUM, DISSOLVED         MG/L  750
LITHIUM, DISSOLVED      UG/L        13      SP. CONDUCTANCE FLD            4800
MAGNESIUM, DISSOLVED MG/L          110      SP. CONDUCTANCE LAB            4912
MANGANESE, DISSOLVED UG/L           34      STRONTIUM, DISSOLVED UG/L      2100
MOLYBDENUM, DISS.       UG/L      1600      SULFATE DISS              MG/L 2400
NITR DIS NO2+NO3   -N MG/L          62      VANADIUM, DISSOLVED  UG/L <       3
NITR DISS  NH4   AS N MG/L           0.66   ZINC, DISSOLVED           UG/L  200


              CATIONS                                        ANIONS

                  (MG/L)        (MEQ/L)                        (MG/L)        (MEQ/L)
POTASSIUM DISS      4.0           0.102 CHLORIDE DISS            10            0.282
CALCIUM, DISSO    330            16.467 FLUORIDE DISS             2.9          0.153
MAGNESIUM, DIS    110             9.049 SULFATE DISS           2400           49.966
SODIUM, DISSOL    750            32.625 ALK,TOT(CACO3)          140            2.797
                                        NITR DIS NO2+N           62            4.426
                              -------                                       -------
                    TOTAL     58.243                           TOTAL        57.625
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UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY DENVER, COLORADO

WATER QUALITY ANALYSIS
LAB-ID # 179051 RECORD-# 104452

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID: 179051 LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800528 END-- TIME--1310
STATE CODE: 08 COUNTY CODE: PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2 SOURCE: OTHER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#: DESCRIPTION: 1980 Leachate Study Plot
C-B TALUS LEACHATE

PRELIMINARY REPORT SUBJECT TO REVISION

ALK,TOT(CACO3)	MG/L	230	NITR DISS NH4+ORG-N	MG/L		10
ANALYZING AGENCY		80020	NITR DISS ORG AS N	MG/L		7.9
ARSENIC DISSOLVED	UG/L	10	NITR DISSOLVED AS N	MG/L		71
BARIUM, DISSOLVED	UG/L	10	NITR. DIS NH4 AS NH4	MG/L		2.7
BERYLLIUM, DISSOLVED	UG/L	< 1	PH FIELD			7.8
BORON DISSOLVED	UG/L	560	PH LAB			7.7
CADMIUM, DISSOLVED	UG/L	< 1	PHENOLS	UG/L		7
CALCIUM, DISSOLVED	MG/L	490	PHOS TOT (TOT) AS P	MG/L		0.86
CARBON DIS ORGANIC		DETR. DELETED	PHOS TOT. (TOT) -PO4	MG/L		2.6
CHLORIDE DISS	MG/L	11	POTASSIUM DISS	MG/L		5.1
COBALT, DISSOLVED	UG/L	< 3	POTASSIUM 40,D.PCI/L			3.8
COPPER, DISSOLVED	UG/L	< 10	RESIDUE DIS CALC SUM	MG/L		5070
CYANIDE	MG/L	0.16	RESIDUE DIS TON/AFT			6.90
FLUORIDE DISS	MG/L	5.9	SAMPLE SOURCE CODE			40
HARDNESS NONCARB	MG/L	1600	SAR			8.8
HARDNESS TOTAL	MG/L	1800	SILICA, DISSOLVED	MG/L		3.2
IRON, DISSOLVED	UG/L	< 10	SODIUM PERCENT			49
LEAD, DISSOLVED	UG/L	< 10	SODIUM, DISSOLVED	MG/L		800
LITHIUM, DISSOLVED	UG/L	47	SP. CONDUCTANCE FLD			5500
MAGNESIUM, DISSOLVED	MG/L	140	SP. CONDUCTANCE LAB			5549
MANGANESE, DISSOLVED	UG/L	21	STRONTIUM, DISSOLVED	UG/L		1200
MOLYBDENUM, DISS.	UG/L	770	SULFATE DISS	MG/L		3200
NITR DIS NO2+NO3 -N	MG/L	61	VANADIUM, DISSOLVED	UG/L	<	3
NITR DISS NH4 AS N	MG/L	2.1	ZINC, DISSOLVED	UG/L		120

CATIONS	(MG/L)	(MEQ/L)	ANIONS	(MG/L)	(MEQ/L)
POTASSIUM DISS	5.1	0.130	CHLORIDE DISS	11	0.310
CALCIUM, DISSO	490	24.451	FLUORIDE DISS	5.9	0.311
MAGNESIUM, DIS	140	11.516	SULFATE DISS	3200	66.624
SODIUM, DISSOL	800	34.800	ALK,TOT(CACO3)	230	4.595
			NITR DIS NO2+NO3	61	4.355
TOTAL		70.898	TOTAL		76.195

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              UNITED STATES DEPARTMENT OF THE INTERIOR
                         GEOLOGICAL SURVEY
                CENTRAL LABORATORY DENVER, COLORADO

                      WATER QUALITY ANALYSIS
                 LAB-ID # 192075 RECORD-# 109644

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:            192075    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800703  END--        TIME--1100
STATE CODE: 08 COUNTY CODE:     PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2  SOURCE: OTHER                GEOLOGIC UNIT:
COMMENTS:      UNIQUE-#:                   DESCRIPTION:  1980 Leachate Study Plot
  C-3 TALUS LEACHATE          PRELIMINARY REPORT SUBJECT TO REVISION


ALK,TOT(CACO3)         MG/L       51      NITR DISS  NH4+ORG-N MG/L       3.0
ANALYZING AGENCY               80020      NITR DISS ORG   AS N MG/L       2.8
ARSENIC DISSOLVED      UG/L       16      NITR DISSOLVED  AS N MG/L       9.5
BARIUM, DISSOLVED      UG/L       70      NITR. DIS NH4 AS NH4 MG/L       0.21
BERYLLIUM, DISSOLVED UG/L <        1      PH FIELD                        7.1
BORON DISSOLVED        UG/L      220      PH LAB                          7.2
CADMIUM, DISSOLVED     UG/L <      1      PHENOLS              UG/L       8
CALCIUM, DISSOLVED     MG/L      189      PHOS TOT  (TOT) AS P MG/L       1.9
CARBON DIS ORGANIC     MG/L       39      PHOS TOT. (TOT) -PO4 MG/L       5.8
CHLORIDE DISS          MG/L        6.3    POTASSIUM DISS       MG/L       1.0
COBALT, DISSOLVED      UG/L        5      POTASSIUM 40,D.PCI/L            0.7
COPPER, DISSOLVED      UG/L <     10      RESIDUE DIS CALC SUM MG/L    1440
CYANIDE                MG/L        0.02   RESIDUE DIS TON/AFT             1.96
FLUORIDE DISS          MG/L        0.5    SAMPLE SOURCE CODE             40
HARDNESS NONCARB       MG/L      620      SAR                             3.6
HARDNESS TOTAL         MG/L      670      SILICA, DISSOLVED    MG/L       7.7
IRON, DISSOLVED        UG/L       26      SODIUM PERCENT                 39
LEAD, DISSOLVED        UG/L <     10      SODIUM, DISSOLVED    MG/L     200
LITHIUM, DISSOLVED     UG/L        7      SP. CONDUCTANCE FLD          1920
MAGNESIUM, DISSOLVED MG/L         48      SP. CONDUCTANCE LAB          1909
MANGANESE, DISSOLVED UG/L         97      STRONTIUM, DISSOLVED UG/L    2300
MOLYBDENUM, DISS.      UG/L      800      SULFATE DISS         MG/L     920
NITR DIS NO2+NO3  -N MG/L          6.5    VANADIUM, DISSOLVED  UG/L <     6
NITR DISS  NH4  AS N MG/L          0.16   ZINC, DISSOLVED      UG/L     190


               CATIONS                                       ANIONS

              (MG/L)          (MEQ/L)                       (MG/L)        (MEQ/L)
POTASSIUM DISS    1.0            0.026 CHLORIDE DISS            6.3          0.178
CALCIUM, DISSO  189              9.431 FLUORIDE DISS            0.5          0.026
MAGNESIUM, DIS   48              3.948 SULFATE DISS           920           19.154
SODIUM, DISSOL  200              8.700 ALK,TOT(CACO3)          51            1.019
                                       NITR DIS NO2+NO3         6.5          0.464
                                ------                                      ------
                    TOTAL       22.105                    TOTAL             20.841
                UNITED STATES DEPARTMENT OF THE INTERIOR
                           GEOLOGICAL SURVEY
                  CENTRAL LABORATORY, DENVER, COLORADO

                        WATER QUALITY ANALYSIS
                    LAB ID # 191123 RECORD # 66718

SAMPLE LOCATION: POND B OUTLET TRACT C-B
STATION ID:           191123    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--790705  END--       TIME--1630
STATE CODE: 08 COUNTY CODE:      PROJECT IDENTIFICATION: 460800300
DATA TYPE: 2  SOURCE: OTHER                GEOLOGIC UNIT:
COMMENTS:                                   DESCRIPTION:  Outlet of Pond B
  FIELD VALUE USED FOR BICARB. & CARBONATE.  POND B OUTLET ON TRACT C-B
  FOR GLEN MILLER; COLLECTED: VWN,KJC
                                    PRELIMINARY REPORT SUBJECT TO REVISION

ANALYZING AGENCY               80020     PH LAB                           9.7
BICARBONATE           MG/L       200     PHOSPHORUS DIS AS P  MG/L        0.01
BORON DISSOLVED       UG/L       120     POTASSIUM DISS       MG/L        7.4
CALCIUM DISS          MG/L        20     POTASSIUM 40,D.PCI/L             5.5
CARBON DIOXIDE        MG/L         0.2   RESIDUE DIS CALC SUM MG/L      815
CARBONATE             MG/L        72     RESIDUE DIS TON/AFT              1.11
CHLORIDE DISS         MG/L        13     SAMPLE SOURCE CODE              40
FLUORIDE DISS         MG/L         1.0   SAR                              5.5
HARDNESS NONCARB      MG/L         0     SILICA DISSOLVED     MG/L       39
HARDNESS TOTAL        MG/L       220     SODIUM + POTASSIUM   MG/L      200
IRON DISSOLVED        UG/L <       0     SODIUM DISS          MG/L      190
MAGNESIUM DISS        MG/L        42     SODIUM PERCENT                  64
MANGANESE DISSOLVED   UG/L <       1     SP. CONDUCTANCE FLD           1100
NO2+NO3 AS N DISS     MG/L         0.51  SP. CONDUCTANCE LAB           1155
PH FIELD                           9.5   SULFATE DISS         MG/L      330
                                         WATER TEMP (DEG C)              20.5


                CATIONS                                   ANIONS

                (MG/L)        (MEQ/L)                      (MG/L)        (MEQ/L)
CALCIUM DISS     20             0.998 BICARBONATE           200           3.278
MAGNESIUM DISS   42             3.455 CARBONATE              72           2.400
POTASSIUM DISS    7.4           0.189 CHLORIDE DISS          13           0.367
SODIUM DISS     190             8.265 FLUORIDE DISS           1.0         0.053
                                      SULFATE DISS          330           6.871
                                      NO2+NO3 AS N D          0.51        0.036
                              ______                                     ______
                     TOTAL    12.907                        TOTAL        13.004


                     PERCENT DIFFERENCE =   -0.37
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58

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY DENVER, COLORADO

WATER QUALITY ANALYSIS
LAB-ID # 135006 RECORD-# 89884

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID: 135006 LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800508 END-- TIME--1145
STATE CODE: 08 COUNTY CODE: PROJECT IDENTIFICATION: 460806500
DATA TYPE: 2 SOURCE: OTHER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#: Cb pond B DESCRIPTION: Outlet of Pond B
FIELD VALUE USED FOR CARBONATE. 5. GH 0.85 FIELD
RERUN: KJD DIS=1.5, TOT=.92

PRELIMINARY REPORT SUBJECT TO REVISION

ALK,TOT(CACO3)	MG/L	760	NITR TOTAL. AS N	MG/L	2.7
ANALYZING AGENCY		80020	NITR. DIS NH4 AS NH4	MG/L	1.0
ARSENIC DISSOLVED	UG/L	13	NITR. TOT NH4 AS NH4	MG/L	1.1
BORON DISSOLVED	UG/L	610	NITR. TOTAL AS NO3	MG/L	12
CALCIUM DISS	MG/L	13	PH FIELD		8.1
CARBON DIS ORGANIC	MG/L	15	PH LAB		8.6
CHLORIDE DISS	MG/L	5.9	PHENOLS	UG/L	0
FLUORIDE DISS	MG/L	15	PHOS TOT (TOT) AS P	MG/L	0.12
HARDNESS NONCARB	MG/L	0	PHOS TOT. (TOT) -PO4	MG/L	0.37
HARDNESS TOTAL	MG/L	68	POTASSIUM DISS	MG/L	14
IRON DISSOLVED	UG/L	20	POTASSIUM 40,D.PCI/L		10
MAGNESIUM DISS	MG/L	8.3	RESIDUE DIS CALC SUM	MG/L	1140
MANGANESE DISSOLVED	UG/L	3	RESIDUE DIS TON/AFT		1.55
NITR DIS NO2+NO3 -N	MG/L	1.5	RESIDUE TOTNONFIL105	MG/L	126
NITR DISS NH4 AS N	MG/L	0.78	SAMPLE SOURCE CODE		40
NITR DISS NH4+ORG-N	MG/L	1.8	SAR		22
NITR DISS ORG AS N	MG/L	1.0	SILICA DISSOLVED	MG/L	24
NITR DISSOLVED AS N	MG/L	3.3	SODIUM DISS	MG/L	420
NITR SUS NH4+ORG -N	MG/L	0.00	SODIUM PERCENT		92
NITR TOT NO2+NO3 -N	MG/L	1.5	SP. CONDUCTANCE FLD		1750
NITR TOT NH4 AS N	MG/L	0.88	SP. CONDUCTANCE LAB		1766
NITR TOT NH4+ORG -N	MG/L	1.2	STRONTIUM DISSOLVED	UG/L	910
NITR TOTAL ORG AS N	MG/L	0.32	SULFATE DISS	MG/L	170

CATIONS			ANIONS		
	(MG/L)	(MEQ/L)		(MG/L)	(MEQ/L)
CALCIUM DISS	13	0.649	CHLORIDE DISS	5.9	0.166
MAGNESIUM DISS	8.3	0.683	FLUORIDE DISS	15	0.790
POTASSIUM DISS	14	0.358	SULFATE DISS	170	3.539
SODIUM DISS	420	18.270	ALK,TOT(CACO3)	760	15.185
			NITR DIS NO2+N	1.5	0.107
TOTAL		19.959	TOTAL		19.787

PERCENT DIFFERENCE = 0.43

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY, DENVER, COLORADO

WATER QUALITY ANALYSIS

LAB ID # 335039 RECORD # 43388

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID: 335039 LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--791128 END-- TIME--1515
STATE CODE: 08 COUNTY CODE: PROJECT IDENTIFICATION: 460806400
DATA TYPE: 2 SOURCE: GROUND WATER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#: DESCRIPTION: WW13
CB POND OBS. WELL. COL BY BLT MEEKER

PRELIMINARY REPORT SUBJECT TO REVISION

ALK,TOT (AS CACO3)	MG/L		360
ALUMINUM DISSOLVED	UG/L		30
ANALYZING AGENCY			80020
ANTIMONY DISSOLVED	UG/L		10
ARSENIC DISSOLVED	UG/L		18
BARIUM, DISSOLVED	UG/L		40
BERYLLIUM, DISSOLVED	UG/L	<	1
BICARBONATE	MG/L		440
BORON DISSOLVED	UG/L		100
BROMIDE	MG/L		0.1
CADMIUM, DISSOLVED	UG/L	<	1
CALCIUM, DISSOLVED	MG/L		54
CARBON DIOXIDE	MG/L		7.0
CARBON DIS ORGANIC	MG/L		30
CARBONATE	MG/L		0
CHLORIDE DISS	MG/L		12
CHROMIUM DISSOLVED	UG/L		0
COBALT, DISSOLVED	UG/L		5
COD	MG/L		31
COPPER, DISSOLVED	UG/L	<	10
FLUORIDE DISS	MG/L		0.1
HARDNESS NONCARB	MG/L		36
HARDNESS TOTAL	MG/L		400
IRON, DISSOLVED	UG/L		19
LEAD DISSOLVED	UG/L		18 ?
~~LEAD, DISSOLVED~~	~~UG/L~~		~~26~~
LITHIUM, DISSOLVED	UG/L		56
MAGNESIUM, DISSOLVED	MG/L		63
MANGANESE, DISSOLVED	UG/L		95
MERCURY DISSOLVED	UG/L		0.0
MOLYBDENUM, DISS.	UG/L		67
NICKEL DISSOLVED	UG/L		24
NITR. NH4 AS NH4 DIS	MG/L		0.31
NITROGEN DIS ORG ASN	MG/L		0.23
NITROGEN DISS AS N	MG/L		0.76
NITROGEN DISS KJD	MG/L		0.47
NITROGEN NH4 ASN DIS	MG/L		0.24
NO2+NO3 AS N DISS	MG/L		0.29
PH FIELD			8.0
PH LAB			DETR. DELETED
PHENOLS	UG/L		3
PHOSPHORUS DIS AS P	MG/L		0.04
POTASSIUM DISS	MG/L		3.8
POTASSIUM 40,D.PCI/L			2.8
SELENIUM DISSOLVED	UG/L		0
SILICA DISSOLVED	MG/L		23 ?
~~SILICA, DISSOLVED~~	~~MG/L~~		~~21~~
SILVER DISSOLVED	UG/L		0
SODIUM PERCENT			74
SODIUM, DISSOLVED	MG/L		180
SP. CONDUCTANCE FLD			1420
SP. CONDUCTANCE LAB			1470
STRONTIUM, DISSOLVED	UG/L		2700
SULFATE DISS	MG/L.		430
VANADIUM, DISSOLVED	UG/L	<	6
WATER TEMP (DEG C)			10.0
ZINC, DISSOLVED	UG/L		47
Residue diss calc sum	mg/L		985

CONTINUED ON NEXT PAGE

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                        WATER QUALITY ANALYSIS CONTINUED
                        LAB ID # 335039 RECORD # 43388

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:           335039    LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--791128  END--        TIME--1515
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PRELIMINARY REPORT SUBJECT TO REVISION

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                CATIONS                                          ANIONS

                 (MG/L)        (MEQ/L)                         (MG/L)         (MEQ/L)
POTASSIUM DISS     3.8           0.097 BICARBONATE             440             7.212
CALCIUM, DISSO    54             2.695 CARBONATE                 0             0.000
MAGNESIUM, DIS    63             5.182 CHLORIDE DISS            12             0.339
SODIUM, DISSOL   180             7.830 FLUORIDE DISS             0.1           0.005
                                       SULFATE DISS            430             8.953
                                       NO2+NO3 AS N D            0.29          0.021
                              ________                                      ________
                       TOTAL    15.804                           TOTAL        16.529
                UNITED STATES DEPARTMENT OF THE INTERIOR
                          GEOLOGICAL SURVEY
                 CENTRAL LABORATORY, DENVER, COLORADO

                       WATER QUALITY ANALYSIS
                    LAB-ID #  89503 RECORD-#  78739

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
STATION ID:            089503  LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800326  END--      TIME--1400
COUNTY CODE:        PROJECT IDENTIFICATION: 460806500
SOURCE:                GROUND WATER       GEOLOGIC UNIT:
COMMENTS:      UNIQUE-#:
  CB POND C WELL. COL BY TOBIN-MEEKER  PRELIMINARY REPORT SUBJECT TO REVISION
                                        DESCRIPTION:  WW13

ALUMINUM DISSOLVED    UG/L        0    MOLYBDENUM SUSPEND.  UG/L        0
ANALYZING AGENCY              80020    MOLYBDENUM TOTAL     UG/L       30
ANTIMONY DISSOLVED    UG/L        1    MOLYBDENUM, DISS.    UG/L       33
ARSENIC DISSOLVED     UG/L       23    NICKEL DISSOLVED     UG/L        7
BARIUM, DISSOLVED     UG/L       30    NICKEL SUSPENDED     UG/L       13
BERYLLIUM, DISSOLVED  UG/L <      1    NICKEL TOTAL         UG/L       20
BICARBONATE           MG/L      480    NITR. NH4 AS NH4 DIS MG/L        0.28
BORON DISSOLVED       UG/L       90    NITROGEN DIS ORG ASN MG/L        0.60
BROMIDE               MG/L        0.1  NITROGEN DISS AS N   MG/L        0.84
CADMIUM, DISSOLVED    UG/L <      1    NITROGEN DISS KJD    MG/L        0.82
CALCIUM DISS            DETR. DELETED  NITROGEN NH4 ASN DIS MG/L        0.22
CALCIUM, DISSOLVED    MG/L       58    NO2+NO3 AS N DISS    MG/L        0.02
CARBON DIOXIDE        MG/L       19    PH FIELD                         7.6
CARBON DIS ORGANIC    MG/L       11    PH LAB                           8.0
CARBONATE             MG/L        0    PHOSPHORUS DIS AS P  MG/L        0.03
CHLORIDE DISS         MG/L        8.7  POTASSIUM DISS       MG/L        1.9
CHROMIUM DISSOLVED    UG/L        0    POTASSIUM 40,D.PCI/L             1.4
COBALT, DISSOLVED     UG/L        6    SAR                              4.8
COD                   MG/L       24    SELENIUM DISSOLVED   UG/L        0
COPPER, DISSOLVED     UG/L <     10    SILICA, DISSOLVED    MG/L       28
FLUORIDE DISS         MG/L        0.1  SILVER DISSOLVED     UG/L        0
HARDNESS NONCARB      MG/L       51    SODIUM + POTASSIUM   MG/L      200
HARDNESS TOTAL        MG/L      440    SODIUM PERCENT                  50
IRON SUSPENDED        UG/L     3600    SODIUM, DISSOLVED    MG/L      200
IRON TOTAL            UG/L     3600    SP. CONDUCTANCE FLD            1430
IRON, DISSOLVED       UG/L <     10    SP. CONDUCTANCE LAB            1465
LEAD, DISSOLVED       UG/L       84    STRONTIUM, DISSOLVED UG/L     3000
LITHIUM, DISSOLVED    UG/L       50    SULFATE DISS         MG/L      410
MAGNESIUM, DISSOLVED  MG/L       72    VANADIUM, DISSOLVED  UG/L <      6
MANGANESE SUSPENDED   UG/L       50    WATER TEMP (DEG C)              12.0
MANGANESE TOTAL       UG/L      190    ZINC SUSPENDED       UG/L       50
MANGANESE, DISSOLVED  UG/L      140    ZINC TOTAL           UG/L      120
MERCURY DISSOLVED     UG/L        0.0  ZINC, DISSOLVED      UG/L       67
                                       Residue diss calc sum mg/L    1015

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WATER QUALITY ANALYSIS CONTINUED
LAB ID # 89503 RECORD # 78739

SAMPLE LOCATION: "NO INFORMATION IN THE STATION HEADER FILE."
TATION ID: 089503 LAT.LONG.SEQ.: * NONE GIVEN *
DATE OF COLLECTION: BEGIN--800326 END-- TIME--1400

PRELIMINARY REPORT SUBJECT TO REVISION

CATIONS	(MG/L)	(MEQ/L)	ANIONS	(MG/L)	(MEQ/L)
POTASSIUM DISS	1.9	0.049	CHLORIDE DISS	8.7	0.245
CALCIUM, DISSO	58	2.894	FLUORIDE DISS	0.1	0.005
MAGNESIUM, DIS	72	5.923	SULFATE DISS	410	8.536
SODIUM, DISSOL	200	8.700	NO2+NO3 AS N D	0.02	0.001
TOTAL		17.565	TOTAL		8.788
			HCO_3	480	7.867
					16.655

PRELIMINARY REPORT SUBJECT TO REVISION

Piceance C + Piceance C Tributary 10-23-80

Site	Time	GH	CFS Qcfs	Temp	Sp Cond	pH	DO	F mg/L	Rmks
Piceance C ab P.C. Trib	1310	-		8.0	1320	8.0	-	0.6 ✓	Slightly Tur QW sam. proc
Piceance C Tributary NO FLUME	1320	.94*	2.79	15.0	2370	8.8	-	17.2 ✓	Turbid QW sam proc
Piceance C bl P.C. Trib	1305	.88**	13.	9.0	1500	8.3	-	3.7 ✓	Turbid QW sam proc

* Flume reading at 1100 before water bypassed flume

** .88 at 1300 – 13 cfs
.96 at 1045 – 15 cfs

PRELIMINARY REPORT SUBJECT TO REVISION

Piceance C. field trip 10-22-80 Bob Tobin

PRELIMINARY REPORT SUBJECT TO REVISION

RIO BLANCO STAKES

Site	Time	G.H.	Qcfs.	Temp	Sp. Cond	pH	D.O.	F mg/l	Remarks
Piceance C at Rt 719	1600	—	E<1.0	7.5	690	8.6	–	0.18	water clear
Piceance C ab Cow C	1015	~	E 1.2	2.5	785	8.4	10.7	0.20	water clear
Piceance C bl Rio Blanco	1105	2.20	10.8	7.0	1185	8.2	10.0	0.24	water clear samples processed for QW anal.
Piceance Trib (No Name)	1230	0.10	0.09 ✓	17.0	2320	9.0	7.1	17.5	water turbid samples processed for QW anal.
Piceance C ab Hunter C	1345	1.15	9.6 ✓	10.5	1430	8.5	13.3	1.15	water clear samples processed for QW anal.

PRELIMINARY REPORT SUBJECT TO REVISION

9-275G
(Mar. 1972)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. 1

Comp. by Key

Checked by

Sta. No.

PIC. BL. NO NAME (PIC. TRIB) AB. WILLOW

Date 1 OCT, 1980 Party KEY

Width 13.5 Area 8.88 Vel. .92 G. H. 0.70 Disch. 8.2

Method .6 No. secs. 20 G. H. change in hrs. Susp. ROD

Method coef. Hor. angle coef. Susp. coef. Meter No. W-25736

GAGE READINGS				
Time		Recorder	Inside	Outside
1500				0.70
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

Type of meter Pygmy

Date rated 3-25-75 for rod, other.

Meter ft. above bottom of weight.

Spin before meas. Free after Free

Meas. plots % diff. from rating

[✓ Wading], cable, ice, boat, upstr., downstr., side bridge feet, mile, above, below gage, and on approach section

Check-bar, found

changed to at

Correct

Levels obtained

Measurement rated excellent (2%), [✓ good (5%)], fair (8%), poor (over 8%), based on following conditions: Cross section Concrete

Flow [illegible] Weather Clear

Other Air °F@

Gage Chain gage installed This day. Water °F@

Record removed None Intake flushed

Observer

Control Clear

Remarks Eddie took photos!

G. H. of zero flow 0.00 ft.

16—82985o-1 GPO

```
[illegible] E CR BELOW RIO BLANCO
          APR          MAY          JUN          JUL          AUG          SEP
  1       12.00        58.30        42.30        10.10        18.40        14.56
          ---------------------------------------------------------------------
  2       12.00        56.50        41.20        12.00        19.60        12.16
          ---------------------------------------------------------------------
  3       12.00        61.30        35.40        11.00        19.40        12.77
          ---------------------------------------------------------------------
  4       12.00        66.60        37.40         9.10        22.30        13.10
          ---------------------------------------------------------------------
  5       13.00        71.00        25.70         8.80        25.10        12.77
          ---------------------------------------------------------------------
  6       13.00        72.40        25.20         8.80        24.70        12.79
          ---------------------------------------------------------------------
  7       13.00        83.00        21.00         8.60        22.20        14.25
          ---------------------------------------------------------------------
  8       13.00        96.20        19.60        10.40        22.00        14.81
          ---------------------------------------------------------------------
  9       14.00        98.20        18.80        10.70        21.50        14.61
          ---------------------------------------------------------------------
 10       14.00       101.00        19.50        10.90        21.00        12.46
          ---------------------------------------------------------------------
 11       14.00       105.00        16.30        10.70        20.50         9.62
          ---------------------------------------------------------------------
 12       14.00       131.00        14.60        10.60        20.00         9.44
          ---------------------------------------------------------------------
 13       14.00       130.00        13.20         9.30        19.50        10.05
          ---------------------------------------------------------------------
 14       14.60       125.00        12.40        10.80        19.00         9.68
          ---------------------------------------------------------------------
 15       16.20       128.00        12.30        12.20        18.50         9.30
          ---------------------------------------------------------------------
 16       18.80       129.00        12.00        11.20        18.00        10.35
          ---------------------------------------------------------------------
 17       22.30       135.00        11.00        12.10        17.50         8.08
          ---------------------------------------------------------------------
 18       29.30       126.00        10.20        12.80        17.00         7.41
          ---------------------------------------------------------------------
 19       48.10       111.00         9.40         9.90        16.50         7.61
          ---------------------------------------------------------------------
 20       63.30       103.00         7.90        10.50        16.00         9.45
          ---------------------------------------------------------------------
 21       74.30        97.40         8.50         9.40        15.44         9.23
          ---------------------------------------------------------------------
 22       76.80        94.40         9.80         8.60        15.49         9.52
          ---------------------------------------------------------------------
 23       60.10        92.90         9.20         9.20        14.78         6.13
          ---------------------------------------------------------------------
          51.30        89.00         8.00        10.60        15.80         3.93
          ---------------------------------------------------------------------
 25       44.70        83.40         8.20        11.20        15.68         1.59
          ---------------------------------------------------------------------
 26       41.50        79.00         7.50        12.20        15.35         4.04
          ---------------------------------------------------------------------
 27       40.40        72.10         7.90        11.00        15.69         5.48
          ---------------------------------------------------------------------
 28       40.00        64.70         7.10        11.30        15.03         8.13
          ---------------------------------------------------------------------
 29       38.30        55.40         8.40        12.60        14.15         5.44
          ---------------------------------------------------------------------
 30       45.10        52.00         8.80        13.90        14.84         5.06
          ---------------------------------------------------------------------
 31        0.00        46.60         0.00        18.70        15.47         0.00
          ---------------------------------------------------------------------
SUM
         895.00      2814.40       480.70       339.20       567.42      [illegible]
[illegible] TOTAL       7311.70          MEAN      20.03
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[illegible]

[illegible] WATER YEAR 1980, MEAN VALUES, FOR

[illegible] BELOW RIO BLANCO

	OCT	NOV	DEC	JAN	FEB	MAR
1	6.20	15.00	11.00	11.00	9.00	11.00
2	5.90	15.00	11.00	10.00	8.90	10.00
3	5.90	14.00	11.00	9.90	8.90	11.00
4	5.90	14.00	9.60	9.90	8.90	11.00
5	6.20	14.00	9.60	9.90	8.90	11.00
6	6.20	14.00	9.60	9.20	8.90	11.00
7	5.90	13.00	9.90	9.90	9.00	11.00
8	5.90	13.00	9.90	9.90	9.00	11.00
9	5.90	13.00	9.90	9.90	8.90	10.00
	6.80	13.00	9.90	10.00	8.80	10.00
	7.70	13.00	10.00	10.00	8.70	11.00
	7.10	13.00	10.00	9.90	8.60	11.00
	6.50	13.00	10.00	10.00	8.50	11.00
	6.80	13.00	10.00	12.00	8.50	11.00
	7.10	12.00	10.00	11.00	9.10	12.00
	8.00	12.00	10.00	9.90	9.10	12.00
	8.30	12.00	10.00	9.90	8.80	11.00
	8.70	12.00	10.00	9.60	11.70	11.00
	9.40	12.00	10.00	9.20	13.40	11.00
	11.00	12.00	10.00	8.90	12.00	11.00
	11.00	12.00	10.00	9.00	11.00	12.00
	12.00	12.00	11.00	9.00	11.00	12.00
	13.00	12.00	11.00	8.90	11.00	12.00
	14.00	12.00	11.00	8.80	9.90	12.00
	14.00	12.00	11.00	8.70	9.70	12.00
	14.00	11.00	10.00	8.40	9.60	12.00
	14.00	11.00	11.00	8.80	10.00	11.00
	14.00	11.00	11.00	9.10	11.00	12.00
	17.00	11.00	11.00	9.10	11.00	12.00
	16.00	11.00	11.00	9.10	0.00	12.00
	15.00	0.00	11.00	9.00	0.00	12.00
	295.40	377.00	320.40	297.90	281.80	350.00

[illegible] DATA, SUBJECT TO REVISION
DISCHARGE, IN CFS, WATER YEAR 1980, MEAN VALUES, FOR

EANCE C/ TRIB NR RIO BLANCO WY 1980 MEAN DAILY DISCHARGE IN CFS

	OCT	NOV	DEC	JAN	FEB	MAR
1	0.03	0.00	0.30	0.00	0.00	0.30
2	0.03	0.00	0.00	0.00	0.00	0.30
3	0.00	0.00	0.00	0.00	0.00	0.30
4	0.00	0.00	0.00	0.00	0.00	0.40
5	0.07	0.10	0.00	0.00	0.00	0.30
6	0.00	0.25	0.00	0.00	0.00	0.20
7	0.00	0.00	0.00	0.00	0.00	0.20
8	0.02	0.20	0.18	0.00	0.00	0.50
9	0.02	0.21	0.00	0.00	0.00	0.10
[illegible]	0.00	0.00	0.00	0.00	0.00	0.20
[illegible]	0.03	0.00	0.00	0.00	0.00	0.30
[illegible]	0.04	0.00	0.00	0.00	0.00	0.30
[illegible]	0.00	0.00	0.00	0.00	0.00	-0.00
[illegible]	0.00	0.12	0.00	0.00	0.00	0.20
[illegible]	0.00	0.00	0.15	0.06	0.00	0.50
[illegible]	0.00	0.00	0.10	0.05	0.05	0.40
	0.05	0.00	0.00	0.05	0.20	0.30
	0.12	0.00	0.00	0.00	0.50	0.07
	0.32	0.00	0.05	0.20	1.00	0.20
	0.19	0.00	0.10	0.60	0.50	0.20
	0.00	0.00	0.05	0.10	0.30	0.20
	0.00	0.00	0.00	0.00	0.30	0.20
	0.00	0.00	0.00	0.00	0.30	0.20
	0.00	0.03	0.00	0.00	0.20	0.10
	0.00	0.20	0.00	0.00	0.20	0.10
	0.00	0.00	0.00	0.30	0.20	0.10
	0.00	0.00	0.10	0.05	0.30	0.10
	0.05	0.00	0.15	0.00	0.20	0.10
	0.00	0.00	0.15	0.00	0.20	0.10
	0.13	0.10	0.10	0.00	0.00	0.05
	0.15	0.00	0.00	0.01	0.00	0.05
TL	1.24	1.27	1.43	1.42	4.35	5.05

```
PICEANCE CR TRIB NR RIO BLANCO WY 1980 MEAN DAILY DISCHARGE IN CFS
          APR            MAY            JUN            JUL            AUG            SEP
 1       0.05           0.00           0.00           0.52           0.00           0.60
        ---------------------------------------------------------------------------------
 2       0.05           0.00           0.00           0.74           0.00           0.70
        ---------------------------------------------------------------------------------
 3       0.05           0.00           0.00           0.72           0.00           1.20
        ---------------------------------------------------------------------------------
 4       0.04           0.04           0.00           0.71           0.00           1.20
        ---------------------------------------------------------------------------------
 5       0.04           0.00           0.00           0.65           0.00           1.40
        ---------------------------------------------------------------------------------
 6       0.04           0.00           0.00           0.16           0.00           1.40
        ---------------------------------------------------------------------------------
 7       0.02           0.13           0.00           0.60           0.55           1.50
        ---------------------------------------------------------------------------------
 8       0.00           0.51           0.00           0.65           0.68           1.40
        ---------------------------------------------------------------------------------
 9       0.40           0.71           0.00           0.70           1.19           1.40
        ---------------------------------------------------------------------------------
10       0.40           0.74           0.12           0.76           1.24           1.40
        ---------------------------------------------------------------------------------
11       0.50           0.80           0.72           0.98           1.34           1.40
        ---------------------------------------------------------------------------------
12       0.50           0.81           0.47           1.12           1.81           1.00
        ---------------------------------------------------------------------------------
13       0.50           0.76           0.00           1.13           1.71           1.50
        ---------------------------------------------------------------------------------
14       0.40           0.79           0.00           1.17           1.66           1.90
        ---------------------------------------------------------------------------------
15       0.70           0.87           0.00           1.15           1.81           1.40
        ---------------------------------------------------------------------------------
16       0.68           0.94           0.00           1.10           1.82           1.40
        ---------------------------------------------------------------------------------
17       0.64           0.97           0.00           0.61           1.08           1.50
        ---------------------------------------------------------------------------------
18       0.73           0.91           0.24           0.37           1.19           1.50
        ---------------------------------------------------------------------------------
19       0.86           0.84           0.00           0.00           1.74           1.40
        ---------------------------------------------------------------------------------
20       0.91           0.36           0.00           0.00           1.62           1.50
        ---------------------------------------------------------------------------------
21       1.02           0.00           0.00           0.36           1.00           1.50
        ---------------------------------------------------------------------------------
22       0.90           0.00           0.00           1.11           1.50           1.50
        ---------------------------------------------------------------------------------
23       0.30           0.00           0.20           1.19           1.50           1.50
        ---------------------------------------------------------------------------------
24       0.00           0.00           [illegible]    1.21           1.10           [illegible]
        ---------------------------------------------------------------------------------
25       0.19           0.00           [illegible]    [illegible]    [illegible]    [illegible]
        ---------------------------------------------------------------------------------
26       0.13           0.00           0.15           [illegible]    [illegible]    [illegible]
        ---------------------------------------------------------------------------------
27       0.04           0.00           0.11           1.15           1.30           1.60
        ---------------------------------------------------------------------------------
28       0.80           0.00           0.18           0.47           1.20           1.60
        ---------------------------------------------------------------------------------
29       0.87           0.00           0.20           0.00           1.20           1.60
        ---------------------------------------------------------------------------------
30       0.42           0.00           0.29           0.00           0.90           1.60
        ---------------------------------------------------------------------------------
31       0.00           0.00           0.00           0.00           0.70           0.00
        ---------------------------------------------------------------------------------
TOTAL
        12.28          10.10           2.91          21.60          32.74          42.60
WATER YEAR TOTAL           130.16               MEAN         0.36
```

```
CH  RGE, IN CFS, WATER YEAR 1980, MEAN VALUES, FOR

CE ICE CREEK ABOVE HUNTER 09306061

           OCT          NOV          DEC          JAN          FEB          MAR
1          10.00        21.00        18.00        21.00        17.00        25.00
           ---------------------------------------------------------------------
2          12.00        19.00        17.00        20.00        17.00        25.00
           ---------------------------------------------------------------------
3          13.00        19.00        21.00        19.00        18.00        25.00
           ---------------------------------------------------------------------
4          13.00        18.00        19.00        18.00        17.00        26.00
           ---------------------------------------------------------------------
5          14.00        18.00        19.00        17.00        17.00        25.00
           ---------------------------------------------------------------------
6          14.00        19.00        20.00        16.00        18.00        23.00
           ---------------------------------------------------------------------
7          14.00        19.00        19.00        17.00        18.00        23.00
           ---------------------------------------------------------------------
8          13.00        19.00        20.00        17.00        18.00        22.00
           ---------------------------------------------------------------------
9          13.00        20.00        20.00        17.00        18.00        21.00
           ---------------------------------------------------------------------
1          13.00        19.00        20.00        18.00        18.00        21.00
           ---------------------------------------------------------------------
           14.00        19.00        21.00        17.00        18.00        21.00
           ---------------------------------------------------------------------
           13.00        19.00        21.00        16.00        17.00        21.00
           ---------------------------------------------------------------------
           12.00        19.00        22.00        19.00        17.00        22.00
           ---------------------------------------------------------------------
           11.00        21.00        22.00        23.00        18.00        23.00
           ---------------------------------------------------------------------
           11.00        23.00        22.00        23.00        20.00        24.00
           ---------------------------------------------------------------------
           11.00        23.00        23.00        20.00        22.00        26.00
           ---------------------------------------------------------------------
           13.00        23.00        23.00        20.00        21.00        26.00
           ---------------------------------------------------------------------
           14.00        23.00        24.00        19.00        28.00        27.00
           ---------------------------------------------------------------------
           15.00        24.00        25.00        19.00        36.00        22.00
           ---------------------------------------------------------------------
           19.00        24.00        25.00        19.00        30.00        22.00
           ---------------------------------------------------------------------
           19.00        23.00        26.00        19.00        26.00        22.00
           ---------------------------------------------------------------------
           20.00        22.00        26.00        19.00        24.00        23.00
           ---------------------------------------------------------------------
           21.00        22.00        25.00        19.00        23.00        23.00
           ---------------------------------------------------------------------
           21.00        21.00        25.00        19.00        23.00        23.00
           ---------------------------------------------------------------------
           21.00        22.00        25.00        19.00        23.00        23.00
           ---------------------------------------------------------------------
           21.00        22.00        25.00        19.00        23.00        22.00
           ---------------------------------------------------------------------
           21.00        22.00        25.00        19.00        25.00        21.00
           ---------------------------------------------------------------------
           21.00        21.00        24.00        18.00        25.00        21.00
           ---------------------------------------------------------------------
           21.00        21.00        24.00        18.00        27.00        22.00
           ---------------------------------------------------------------------
           21.00        21.00        23.00        18.00         0.00        22.00
           ---------------------------------------------------------------------
           21.00       710.00        22.00        18.00         0.00        21.00
           ---------------------------------------------------------------------

          490.00       626.00       691.00       590.00       622.00       710.00
```

```
PICEANCE CREEK ABOVE HUNTER 09306061
            APR          MAY          JUN          JUL          AUG          SEP
  1        21.00        86.00        36.00         9.80        25.40        24.00
          ----------------------------------------------------------------------
  2        22.00        78.00        34.00        13.00        28.70        23.30
          ----------------------------------------------------------------------
  3        22.00        80.00        32.00        11.00        28.60        23.50
          ----------------------------------------------------------------------
  4        22.00        82.00        29.00         9.10        28.50        23.70
          ----------------------------------------------------------------------
  5        23.00        79.00        27.00         9.50        29.20        24.50
          ----------------------------------------------------------------------
  6        23.00        75.00        21.00         8.50        29.20        25.00
          ----------------------------------------------------------------------
  7        24.00        82.00        18.00         9.30        30.20        25.50
          ----------------------------------------------------------------------
  8        23.00        90.00        13.00        10.00        28.60        25.50
          ----------------------------------------------------------------------
  9        23.00        90.00        11.00        11.00        27.60        25.10
          ----------------------------------------------------------------------
 10        24.00        83.00        12.00        12.00        26.30        25.00
          ----------------------------------------------------------------------
           24.00        76.00        17.00        11.00        25.00        23.00
          ----------------------------------------------------------------------
 12        24.00       107.00        10.00        11.00        25.90        21.50
          ----------------------------------------------------------------------
 13        23.00      -121.00        16.00        11.00        27.10        22.20
          ----------------------------------------------------------------------
 14        23.00       110.00        16.00        13.00        28.40        21.70
          ----------------------------------------------------------------------
 15        25.00       107.00        15.00        13.00        28.00        20.30
          ----------------------------------------------------------------------
 16        25.00        99.00        16.00        12.00        27.30        20.40
          ----------------------------------------------------------------------
 17        27.00        96.00        14.00        10.40        26.40        19.20
          ----------------------------------------------------------------------
 18        30.00       103.00        11.00        10.20        26.30        17.10
          ----------------------------------------------------------------------
 19        35.00       100.00        10.00        10.60        26.60        16.50
          ----------------------------------------------------------------------
 20        40.00        90.00         9.80        10.90        26.60        19.30
          ----------------------------------------------------------------------
 21        45.00        78.00         9.70        10.90        26.40        20.40
          ----------------------------------------------------------------------
 22        50.00        73.00        11.00        11.20        26.80        21.00
          ----------------------------------------------------------------------
 23        55.00        71.00        11.00        12.00        25.70        19.10
          ----------------------------------------------------------------------
           60.00        68.00         8.60        16.40        27.10        10.00
          ----------------------------------------------------------------------
 25        69.00        68.00         8.50        19.50        26.90         7.90
          ----------------------------------------------------------------------
 26        67.00        66.00         8.90        20.30        27.10         6.70
          ----------------------------------------------------------------------
 27        66.00        63.00        11.00        18.80        26.60         5.50
          ----------------------------------------------------------------------
 28        65.00        60.00        10.00        19.70        25.70         7.00
          ----------------------------------------------------------------------
 29        66.00        54.00         9.90        18.30        25.40         8.90
          ----------------------------------------------------------------------
 30        81.00        44.00         9.40        20.80        26.40         8.80
          ----------------------------------------------------------------------
 31         0.00        37.00        00.00        24.40        25.80       580.00
          ----------------------------------------------------------------------
TOTAL
         1127.00      2516.00       473.80       408.60       839.80       561.40
WATER YEAR TOTAL         9645.60             MEAN      26.43
```

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